

2



US Department
of Transportation
Federal Aviation
Administration

Rotorcraft Activity Survey

AD-A236 698



1989

DTIC
4-7-89

15-1

Office of

91 6 5 066

91-01338



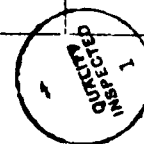


U.S. Department
of Transportation
Federal Aviation
Administration

Rotorcraft Activity Survey

1989

Accession For	
NTIS GRA&I	<input checked="" type="checkbox"/>
DTIC TAB	<input type="checkbox"/>
Unannounced	<input type="checkbox"/>
Justification	
By	
Distribution	
Availability	
Availability/et	
Dist	special
A-1	



Availability is unlimited. Document may be released to the National Technical Information Service Springfield, Virginia 22161, for sale to the public.

1. Report No.	2. Government Accession No.	3. Recipient's Catalog No.	
4. Title and Subtitle ROTORCRAFT ACTIVITY SURVEY Summary Report 1989 Data		5. Report Date 1989	
		6. Performing Organization Code AMS-420	
7. Author(s) Executive Resource Associates, Inc. Subcontractor: Adsystem, Inc. 2011 Crystal Dr., Suite 813 8601 Georgia Ave., Suite 801 Arlington, VA 22202 Silver Spring, MD 20910		8. Performing Organization Report No.	
9. Performing Organization Name and Address Federal Aviation Administration Office of Management Systems 800 Independence Avenue, S.W. Washington, D.C. 20591		10. Work Unit No. (TRIS)	
		11. Contract or Grant No. DTFA01-Y-88-01026	
12. Sponsoring Agency Name and Address U.S. Department of Transportation Federal Aviation Administration 800 Independence Avenue, S.W. Washington, D.C. 20591		13. Type of Report and Period Covered Special One-Time Calendar Year 1989	
		14. Sponsoring Agency Code	
15. Supplementary Notes			
16. Abstract This report presents the results of a special one-time Rotorcraft Activity Survey. The survey is conducted by the FAA to obtain information on the activity of the United States registered rotorcraft fleet. The report contains breakdowns of active rotorcraft, annual flight hours, average flight hours and other statistics by rotorcraft type, manufacturer/model group, region and state of based aircraft, and primary use. Also included are law enforcement and public use rotorcraft, lifetime airframe hours, engine hours, miles flown estimates, and estimates of the number of landings.			
17. Key Words Rotorcraft, Rotorcraft Activity, Rotorcraft Use, Hours Flown, Miles Flown		18. Distribution Statement DOCUMENT IS AVAILABLE TO THE PUBLIC THROUGH THE NATIONAL TECHNICAL INFORMATION SERVICE, SPRINGFIELD, VIRGINIA 22161	
19. Security Classif. (of this report) Unclassified	20. Security Classif. (of this report) Unclassified	21. No. of Pages 153	22. Price

ORDER INFORMATION

Addresses are listed below for ordering purposes.

Superintendent of Documents, U.S. Government Printing office (GPO), Washington, DC 20402, (202) 783-3238 or contact any of the following GPO Bookstores located throughout the United States. Format: Original Book.

U.S. Government Printing Office, 710 North Capitol Street, N.W., Washington, DC 20402; 202-275-2091

Commerce Department Bookstore, 14th & E Streets, N.W., Room 1604, Washington, DC 20230; 202-377-3527

Farragut West Bookstore, 1510 H Street, N.W., Washington, DC 20036; 202-653-5075

Pentagon Bookstore, Main Concourse, South End, Washington, DC 20310; 703-557-1821

Retail Sales Outlet, 8660 Cherry Lane, Laurel, MD 20707; 301-953-7974. Order Desk: 202-783-3238

Atlanta Bookstore, Room 100, Federal Building, 275 Peachtree Street, N.E., Atlanta, GA 30303; 404-221-6947

Birmingham Bookstore, Roebuck Shopping City, 9220-B Parkway East, Birmingham, AL 35206; 205-254-1056

Boston Bookstore, Room G-25, JFK Federal Building, Sudbury Street, Boston, MA 02203; 617-223-6071

Chicago Bookstore, Room 1365, 219 S. Dearborn Street, Chicago, IL 60604; 312-353-5133

Cleveland Bookstore, 1st Floor, Federal Office Building, 1240 E. 9th Street, Cleveland, OH 44199; 216-522-4922

Columbus Bookstore, Room 207, Federal Building, 200 North High Street, Columbus, OH 43215; 614-469-6956

Dallas Bookstore, Room 1C50, Federal Building, 1100 Commerce Street, Dallas, TX 75242; 214-767-0076

Denver Bookstore, Room 117, Federal Building, 1961 Stout Street, Denver, CO 80294; 303-844-3964

Detroit Bookstore, Federal Building, Suite 160, 477 Michigan Avenue, Detroit, MI 48226; 313-226-7816

Houston Bookstore, 45 College Center, 9319 Gulf Freeway, Houston, TX 77017; 713-229-3515

Jacksonville Bookstore, 400 West Bay Street, Room 158, P.O. Box 35089, Jacksonville, FL 32202; 904-791-3801

Kansas City Bookstore, Room 144, Federal Office Building, 601 East 12th Street, Kansas City, MO 64106; 816-374-2160

Los Angeles Bookstore, Arco Plaza, Level (C), 505 South Flower Street, Los Angeles, CA 90071; 213-688-5841

Milwaukee Bookstore, Room 190, Federal Building, 517 E. Wisconsin Avenue, Milwaukee, WI 53202; 414-291-1304

New York Bookstore, Room 110, 26 Federal Plaza, New York, NY 10278; 212-264-3825

Philadelphia Bookstore, Room 1214, Federal Office Building, 600 Arch Street, Philadelphia, PA 19106; 215-597-0677

Pittsburgh Bookstore, Room 118, Federal Building, 1000 Liberty Avenue, Pittsburgh, PA 15222; 412-644-2721

Pueblo Bookstore, 720 North Main Street, World Savings Building, Pueblo, CO 81003; 303-544-3142

San Francisco Bookstore, Room 1023, Federal Office Building, 450 Golden Gate Avenue, San Francisco, CA 94102; 415-556-0643

Seattle Bookstore, Room 194, Federal Office Building, 915 Second Avenue, Seattle, WA 98174; 206-442-4270

MANAGEMENT STANDARDS AND STATISTICS DIVISION PUBLICATION INFORMATION

Below is a list of the publications compiled by the Management Systems, Management Standards and Statistics Division. Questions may be directed to us by phone: (202) 267-9938, or by writing Federal Aviation Administration, Management Standards and Statistics Division (AMS-400), 800 Independence Avenue, S.W., Washington, DC 20591.

Airport Activity Statistics of Certificated Route Air Carriers is a joint publication of the Federal Aviation Administration (FAA) and the Research and Special Programs Administration (RSPA). RSPA furnishes airport activity data on certificated route air carriers; FAA organizes/publishes it. Included in the data are passenger enplanements, tons of enplaned freight, express and mail. Both scheduled/nonscheduled service and domestic/international operations shown by airport and carrier are also included. Breakdown of data includes departures/enplanements/cargo/mail by airport, carrier and type of operation, and type of aircraft.

Reporting period:	Calendar Year
Latest edition:	1989 data
Order from:	Government Printing Office or National Technical Information Service
Date 1990 information will be available:	July 1991
Date next publication is available:	September 1991 (1990 data)
Person to contact:	Patricia Beardsley

Census of the U.S. Civil Aircraft is an annual publication that includes statistical data on the registered civil fleet, air carrier aircraft, and general aviation aircraft--both registered and active, detailed reports for general aviation aircraft by owner's state and county, and registered aircraft by make and model.

Reporting period:	Calendar Year
Latest edition:	1989 data
Order from:	U.S. Government Printing Office or National Technical Information Service
Date 1989 Information will be available:	May 1991
Date next publication is scheduled:	August 1991 (1990 data)
Person to contact:	Patricia Beardsley

FAA Air Traffic Activity furnishes terminal and enroute air traffic activity information (e.g., takeoffs and landings, flight plans filed) of the National Airspace System. The data is collected/compiled from the FAA-operated Airport Traffic Control Towers, Air Route Traffic Control Centers, Flight Service Stations, Approach Control Facilities, and FAA Contract-towered airports.

Reporting period:	Fiscal Year
Latest edition:	1989 data
Order from:	U.S. Government Printing Office or National Technical Information Service
Date 1990 information will be available:	February 1991
Date next publication is scheduled:	May 1991 (1990 data)
Person to contact:	Nancy Trembley

FAA Directory is published twice a year. It contains six sections of data: Washington/Region/Center headquarters' managers; field facilities' managers/supervisors; regional area maps/organizational charts; alphabetical listing; special interest groups; and a glossary.

Latest edition:	January 1991
Order from:	U.S. Government Printing Office
Date next publication is scheduled:	July 1991
Person to contact:	Alfredia Brooks

FAA Statistical Handbook of Aviation is a convenient source for historical data. It presents statistical information pertaining to the Federal Aviation Administration, the National Airspace System, Airports, Airport Activity, U.S. Civil Air Carrier Fleet, U.S. Civil Air Carrier Operating Data, Airmen, General Aviation Aircraft, Aircraft Accidents, Aeronautical Production and Import/Export.

Reporting period:	Calendar Year
Latest edition:	1989 data
Order from:	U.S. Government Printing Office or National Technical Information Service
Date 1989 information will be available:	Various
Date next publication is scheduled:	December 1991 (1990 data)
Person to contact:	Patricia Beardsley

General Aviation Activity and Avionics Survey is an annual report that presents the results of the general aviation activity and avionics survey conducted to obtain information on the activity and avionics of the U.S. registered general aviation aircraft fleet. The report contains estimated flying time, landings, fuel consumption, lifetime airframe hours, avionics, and engine hours of the general aviation aircraft by manufacturer/model group, aircraft type, state and region of based aircraft, and primary use.

Reporting period:	Calendar Year
Latest edition:	1989 data
Order from:	Government Printing Office or National Technical Information Service
Date 1989 Information will be available:	August 1991
Date next publication is available:	November 1991 (1990 data)
Person to contact:	Shung-Chai Huang

U.S. Civil Airmen Statistics is an annual study of detailed airmen statistics. It contains calendar year statistics on pilots and nonpilots and the number of certificates issued.

Reporting period:	Calendar Year
Latest edition:	1989 data
Order from:	Management Standards and Statistics Division or National Technical Information Service
Date 1990 information is available:	February 1991
Date next publication is scheduled:	April 1991 (1990 data)
Person to contact:	Patricia Carter

PREFACE

This report presents the results of the 1989 Rotorcraft Activity Survey as prepared by the Statistical Analysis Branch, Management Standards and Statistics Division, Office of Management Systems (AMS-420).

The report is divided into seven, easy-to-read chapters. Each chapter contains its corresponding tables and figures. The figures are presented first, with the tables following the figures.

Chapter I, **Introduction**, briefly discusses the purpose, background and scope of the Rotorcraft Activity Survey Report and highlights the important findings of the survey.

Chapter II, **Common General Aviation Activity Measures**, presents information on several aviation activity measures used to indicate growth trends and activity levels in the rotorcraft fleet. Some common aviation activity measures of interest are the number of active rotorcraft (flew one or more hours during the year), the total hours flown, and average annual hours flown per rotorcraft.

Chapter III, **Landings and Rotorcraft Base Facilities**, presents the number of rotorcraft landing at airports; heliports; helipads at airports; offshore platforms; and other landing facilities.

Chapter IV, **Primary Use by Expanded Use Category**, displays the array of services provided by the rotorcraft fleet, such as air taxi, external load, personal, business, instructional, and emergency medical service.

Chapter V, **Airframe Hours**, provides data on the age of the rotorcraft fleet by presenting the average airframe hours per active rotorcraft.

Chapter VI, **Law Enforcement Rotorcraft**, examines the estimated number of law enforcement rotorcraft, total flight hours and average flight hours in four different ways, by: 1) aircraft type; 2) region of based rotorcraft; 3) Service Difficulty Reporting (SDR) Rotorcraft Manufacturer/Model Group; and 4) state of based rotorcraft. In addition, this chapter looks at the number of law enforcement rotorcraft and total flight hours by expanded use category.

Chapter VII, **Public Use Rotorcraft**, examines the estimated number of public use rotorcraft, total flight hours and average flight hours in four different ways, by: 1) aircraft type; 2) region of based rotorcraft; 3) SDR Rotorcraft Manufacturer/Model Group; and 4) state of based rotorcraft. In addition, this chapter looks at the number of public use rotorcraft and total flight hours by expanded use category.

Appendix A details the methodology of the survey and includes a definition and explanation of "standard error," a statistical measure reported in each table. Appendix B lists SDR aircraft group name and FAA Manufacturer/Model Codes. Appendix C contains the definitions of rotorcraft expanded use categories.

Suggestions and comments about this report are welcome and will be given careful consideration in planning future editions.

TABLE OF CONTENTS

	<u>Page</u>
ORDER INFORMATION.....	i
MANAGEMENT STANDARDS AND STATISTICS DIVISION PUBLICATION INFORMATION...	ii
PREFACE.....	v
FAA REGIONAL BOUNDARIES.....	xi
I. INTRODUCTION.....	1-1
II. COMMON GENERAL AVIATION ACTIVITY MEASURES.....	2-1
2.1 1989 Rotorcraft Population Size, Active Rotorcraft, Total Flight Hours and Average Flight Hours by Rotorcraft Type...	2-6
2.2 1989 Rotorcraft Population Size, Active Rotorcraft, Total Flight Hours and Average Flight Hours by SDR Rotorcraft Manufacturer/Model Group.....	2-7
2.3 1989 Rotorcraft Population Size, Active Rotorcraft, Total Flight Hours and Average Flight Hours by Region of Based Rotorcraft.....	2-10
2.4 1989 Rotorcraft Population Size, Active Rotorcraft, Total Flight Hours and Average Flight Hours by State of Based Rotorcraft.....	2-11
III. LANDINGS AND ROTORCRAFT BASE FACILITIES.....	3-1
3.1 1989 Total Rotorcraft Landings by Landing Facility Type by Rotorcraft Type.....	3-7
3.2 1989 Total Rotorcraft Landings by Landing Facility Type by SDR Rotorcraft Manufacturer/Model Group.....	3-8
3.3 1989 Total Rotorcraft Landings by Landing Facility Type by Region of Based Rotorcraft.....	3-14
3.4 1989 Total Rotorcraft Landings by Landing Facility Type by State of Based Rotorcraft.....	3-15
3.5 1989 Rotorcraft Average Number of Landings Per Flight Hour by Rotorcraft Type.....	3-21
3.6 1989 Rotorcraft Average Number of Landings Per Flight Hour by SDR Rotorcraft Manufacturer/Model Group.....	3-22

	<u>Page</u>
III. LANDINGS AND ROTORCRAFT BASE FACILITIES (Cont'd.)	
3.7 1989 Rotorcraft Average Number of Landings Per Flight Hour by Region of Based Rotorcraft.....	3-25
3.8 1989 Rotorcraft Average Number of Landings Per Flight Hour by State of Based Rotorcraft.....	3-26
3.9 1989 Rotorcraft Total Landings by Expanded Use Category by Rotorcraft Type.....	3-29
3.10 1989 Total Active Rotorcraft by Base Facility Type by Rotorcraft Type.....	3-31
3.11 1989 Total Active Rotorcraft by Base Facility Type by SDR Rotorcraft Manufacturer/Model Group.....	3-32
3.12 1989 Total Active Rotorcraft by Base Facility Type by Region of Based Rotorcraft.....	3-38
3.13 1989 Total Active Rotorcraft by Base Facility Type by State of Based Rotorcraft.....	3-40
IV. PRIMARY USE BY EXPANDED USE CATEGORY.....	4-1
4.1 1989 Total Active Rotorcraft by Expanded Use Category by Rotorcraft Type.....	4-4
4.2 1989 Rotorcraft Total Flight Hours by Expanded Use Category by Rotorcraft Type.....	4-5
4.3 1989 Total Active Rotorcraft by Expanded Use Category by SDR Rotorcraft Manufacturer/Model Group.....	4-6
4.4 1989 Rotorcraft Total Flight Hours by Expanded Use Category by SDR Rotorcraft Manufacturer/Model Group.....	4-12
4.5 1989 Total Active Rotorcraft by Expanded Use Category by Region of Based Rotorcraft.....	4-18
4.6 1989 Rotorcraft Total Flight Hours by Expanded Use Category by Region of Based Rotorcraft.....	4-20
4.7 1989 Total Active Rotorcraft by Expanded Use Category by State of Based Rotorcraft.....	4-21
4.8 1989 Rotorcraft Total Flight Hours by Expanded Use Category by State of Based Rotorcraft.....	4-27

	<u>Page</u>
V. AIRFRAME HOURS.....	5-1
5.1 1989 Rotorcraft Total Airframe Hours and Average Airframe Hours by Rotorcraft Type.....	5-3
5.2 1989 Rotorcraft Total Airframe Hours and Average Airframe Hours by SDR Rotorcraft Manufacturer/Model Group.....	5-4
VI. LAW ENFORCEMENT ROTORCRAFT.....	6-1
6.1 1989 Law Enforcement Rotorcraft, Total Flight Hours and Average Flight Hours by Rotorcraft Type.....	6-6
6.2 1989 Law Enforcement Rotorcraft, Total Flight Hours and Average Flight Hours by SDR Rotorcraft Manufacturer/Model Group.....	6-7
6.3 1989 Law Enforcement Rotorcraft, Total Flight Hours and Average Flight Hours by Region of Based Rotorcraft.....	6-10
6.4 1989 Law Enforcement Rotorcraft, Total Flight Hours and Average Flight Hours by State of Based Rotorcraft.....	6-11
6.5 1989 Law Enforcement Rotorcraft, Number of Rotorcraft by Expanded Use Category by Rotorcraft Type.....	6-14
6.6 1989 Law Enforcement Rotorcraft Flight Hours by Expanded Use Category by Rotorcraft Type.....	6-15
VII. PUBLIC USE ROTORCRAFT.....	7-1
7.1 1989 Public Use Rotorcraft, Total Flight Hours and Average Flight Hours by Rotorcraft Type.....	7-6
7.2 1989 Public Use Rotorcraft, Total Flight Hours and Average Flight Hours by SDR Rotorcraft Manufacturer/ Model Group.....	7-7
7.3 1989 Public Use Rotorcraft, Total Flight Hours and Average Flight Hours by Region of Based Rotorcraft.....	7-10
7.4 1989 Public Use Rotorcraft, Total Flight Hours and Average Flight Hours by State of Based Rotorcraft.....	7-11
7.5 1989 Public Use Rotorcraft, Number of Rotorcraft by Expanded Use Category by Rotorcraft Type.....	7-14
7.6 1989 Public Use Rotorcraft Flight Hours by Expanded Use Category by Rotorcraft Type.....	7-15

	<u>Page</u>
APPENDIX A. Methodology for Rotorcraft Survey.....	A-1
1. Overview.....	A-1
2. Coverage.....	A-1
3. Methodology.....	A-3
4. Response.....	A-3
A.1 Summary of Response Information.....	A-4
5. Census Design.....	A-4
A.2 Census and Population Distribution by Rotorcraft Type.....	A-5
A.3 Confidence of Interval Estimates.....	A-6
A.4 Response Rate by Rotorcraft Type.....	A-7
 APPENDIX B. SDR Rotorcraft Group Name - FAA Manufacturer/Model Codes...	 B-1
APPENDIX C. Definitions of Rotorcraft Expanded Use Categories.....	C-1

LISTING OF FIGURES

<u>Figure</u>		<u>Page</u>
2.1	1989 ACTIVE VS. REGISTERED ROTORCRAFT BY ROTORCRAFT TYPE...	2-3
2.2	1989 ROTORCRAFT TOTAL FLIGHT HOURS BY ROTORCRAFT TYPE.....	2-4
2.3	1989 ROTORCRAFT AVERAGE HOURS FLOWN BY ROTORCRAFT TYPE.....	2-5
3.1	1989 NUMBER OF ROTORCRAFT LANDINGS BY ROTORCRAFT TYPE.....	3-3
3.2	1989 ROTORCRAFT LANDINGS BY LANDING FACILITY TYPE.....	3-4
3.3	1989 NUMBER OF ROTORCRAFT LANDINGS BY EXPANDED USE CATEGORY.....	3-5
3.4	1989 ACTIVE ROTORCRAFT BY BASE FACILITY TYPE.....	3-6
4.1	1989 NUMBER OF ROTORCRAFT AND TOTAL FLIGHT HOURS BY EXPANDED USE CATEGORY.....	4-3
5.1	1989 ROTORCRAFT AVERAGE AIRFRAME HOURS BY ROTORCRAFT TYPE.....	5-2
6.1	1989 LAW ENFORCEMENT ROTORCRAFT.....	6-3
6.2	1989 LAW ENFORCEMENT ROTORCRAFT TOTAL FLIGHT HOURS BY ROTORCRAFT TYPE.....	6-4
6.3	1989 NUMBER OF LAW ENFORCEMENT ROTORCRAFT AND TOTAL FLIGHT HOURS BY SELECTED PRIMARY USE CATEGORIES.....	6-5
7.1	1989 PUBLIC USE ROTORCRAFT.....	7-3
7.2	1989 PUBLIC USE ROTORCRAFT TOTAL FLIGHT HOURS BY ROTORCRAFT TYPE.....	7-4
7.3	1989 NUMBER OF PUBLIC USE ROTORCRAFT AND TOTAL FLIGHT HOURS BY SELECTED PRIMARY USE CATEGORIES.....	7-5
A.1	1989 ROTORCRAFT ACTIVITY SURVEY QUESTIONNAIRE.....	A-2
A.2	FIRST 1989 ROTORCRAFT ACTIVITY SURVEY COVER LETTER FOR OWNERS.....	A-8
A.3	SECOND 1989 ROTORCRAFT ACTIVITY SURVEY COVER LETTER FOR OWNERS.....	A-10
A.4	THIRD 1989 ROTORCRAFT ACTIVITY SURVEY COVER LETTER FOR OWNERS.....	A-12
A.5	FAA ADMINISTRATOR ARTICLE.....	A-14

FAA REGIONAL BOUNDARIES

INCLUDING LOCATIONS OF REGIONAL HEADQUARTERS AND CENTERS



CHAPTER I

INTRODUCTION

The 1989 Rotorcraft Activity Survey is the first ever census of the more than 10,000 registered rotorcraft in the United States. This report presents the 1989 Rotorcraft Activity Survey results which provide the FAA with valuable information about the activities of the rotorcraft fleet. The information obtained from this survey enables the FAA to monitor the rotorcraft fleet so that FAA can, among other activities, anticipate and meet demand for National Airspace System (NAS) facilities and services, assess the impact of regulatory changes on the rotorcraft fleet, and implement measures to assure the safe operation of rotorcraft in the airspace.

For the purposes of this rotorcraft survey, the term, "rotorcraft," refers to aircraft that use rotating wings (blades) to move through the air. In this report, rotorcraft are considered in two aircraft groups, manufacturer built and amateur built. The manufacturer built rotorcraft are further divided into piston, and single engine and multiengine turbine rotorcraft. The rotorcraft surveyed, therefore, range in complexity from simple, amateur built rotorcraft, to the more sophisticated manufacturer built multiengine, turbine-powered rotorcraft. These rotorcraft are used for a variety of purposes such as air taxi, commuter, personal, corporate/business, instructional, and emergency medical service--to name a few.

Also provided in this report is information on rotorcraft used for law enforcement purposes and public use activities.

The rotorcraft survey questionnaire was mailed to every U.S. registered rotorcraft owner in three mailings and to rotorcraft operators in the first two mailings. More than 64 percent of the rotorcraft owners/operators responded to the census. Rotorcraft data, therefore, were collected for every state and FAA region, as well as all of the major manufacturer/model groups of rotorcraft. A detailed description of the survey methodology is provided in Appendix A.

This report is divided into seven chapters. Each chapter contains its corresponding tables and figures, which follow each chapter's text. The figures are presented first, with the tables following the figures. Altogether, there are 15 figures and 39 tables of data on rotorcraft presented in this report.

Following are some of the significant rotorcraft survey findings for 1989:

GENERAL

- o More than 2.8 million hours were flown by the 7,488 active rotorcraft in the U.S. fleet during 1989.
- o The average flight time per active rotorcraft was 390 hours, almost two and a half times the average flight time of the 1989 general aviation fixed wing fleet (158 hours).
- o Active rotorcraft comprised approximately 72 percent of the registered rotorcraft fleet.
- o During 1989, the rotorcraft fleet made almost 7.4 million landings.

- o The total airframe hours for the active rotorcraft population is 31.4 million hours.
- o The active rotorcraft population has an average of approximately 4,191 lifetime airframe hours.

GEOGRAPHIC

- o The three regions with the greatest number of active rotorcraft are: the Western-Pacific with 1,458; the Southwestern with 1,413; and the Southern with 1,223.
- o The state with the largest estimated number of active rotorcraft is California with 1,072 active rotorcraft. The next top two states are Louisiana with 645 and Florida with 635 active rotorcraft.
- o The three regions with the greatest number of landings are: Southwestern with nearly 2 million landings; Western-Pacific with 1.7 million; and Eastern with more than 951,000 landings.

ROTORCRAFT TYPE AND PRIMARY USE

- o Air taxi is the most popular primary use of the active rotorcraft fleet. Almost 18 percent are primarily used in this way. The second and third most popular primary uses are aerial observation and personal - 17 percent and 14 percent, respectively.
- o Single engine turbine rotorcraft flew more than 54 percent of the total hours flown.
- o Multiengine turbine rotorcraft averaged the most hours flown per rotorcraft, with 552 average hours. The single engine turbine rotorcraft followed closely with an average of 481 average hours.
- o Although piston rotorcraft represent the greatest population, they do not have the highest total airframe hours. Single engine turbine rotorcraft have both the highest total airframe hours and average airframe hours, with 16.0 million total airframe hours and 4,934 average airframe hours.

LAW ENFORCEMENT AND PUBLIC USE ROTORCRAFT

- o Law enforcement rotorcraft comprise 8.2 percent of the active rotorcraft fleet, and public use rotorcraft comprise 9.6 percent of the active rotorcraft fleet.
- o Aerial observation is the most frequent primary use of law enforcement rotorcraft, with 68 percent of the law enforcement rotorcraft used primarily for this purpose.
- o Aerial observation is also the most frequent primary use of public use rotorcraft, with 50 percent of the public use rotorcraft used primarily for this purpose.

CHAPTER II

COMMON GENERAL AVIATION ACTIVITY MEASURES

Several aviation activity measures are used to indicate growth trends and activity levels in the rotorcraft fleet. Some common aviation activity measures of interest are the number of active rotorcraft (flew one or more hours during the year), the total hours flown, and average annual hours flown per rotorcraft.

This chapter presents four tables and three figures on these common aviation activity measures. Tables 2.1-2.4 give estimates of the rotorcraft population size, number of active rotorcraft, total flight hours and average annual flight hours in four different ways, by: 1) Rotorcraft Type; 2) Service Difficulty Reporting (SDR) Rotorcraft Manufacturer/Model Group; 3) Region of Based Rotorcraft; and 4) State of Based Rotorcraft.

To visualize the data presented in Tables 2.1-2.4, three figures are included in this chapter. Figures 2.1, 2.2 and 2.3 show, by rotorcraft type, the number of active versus registered rotorcraft, total flight hours, and average annual flight hours, respectively.

Table 2.2 breaks down the number of estimated active aircraft and their respective average annual flight hour estimates by Service Difficulty Reporting (SDR) Rotorcraft Manufacturer/Model Group. The four "Other" categories listed in the beginning of Table 2.2 refer to all the rotorcraft which belong to a manufacturer's/model group that has less than 20 rotorcraft.

The different "Other" categories represent:

- 1 Manufactured Piston.
- 2 Manufactured Single Engine Turbine Rotorcraft.
- 3 Manufactured Multiengine Turbine Rotorcraft.
- 4 Amateur Built Rotorcraft.

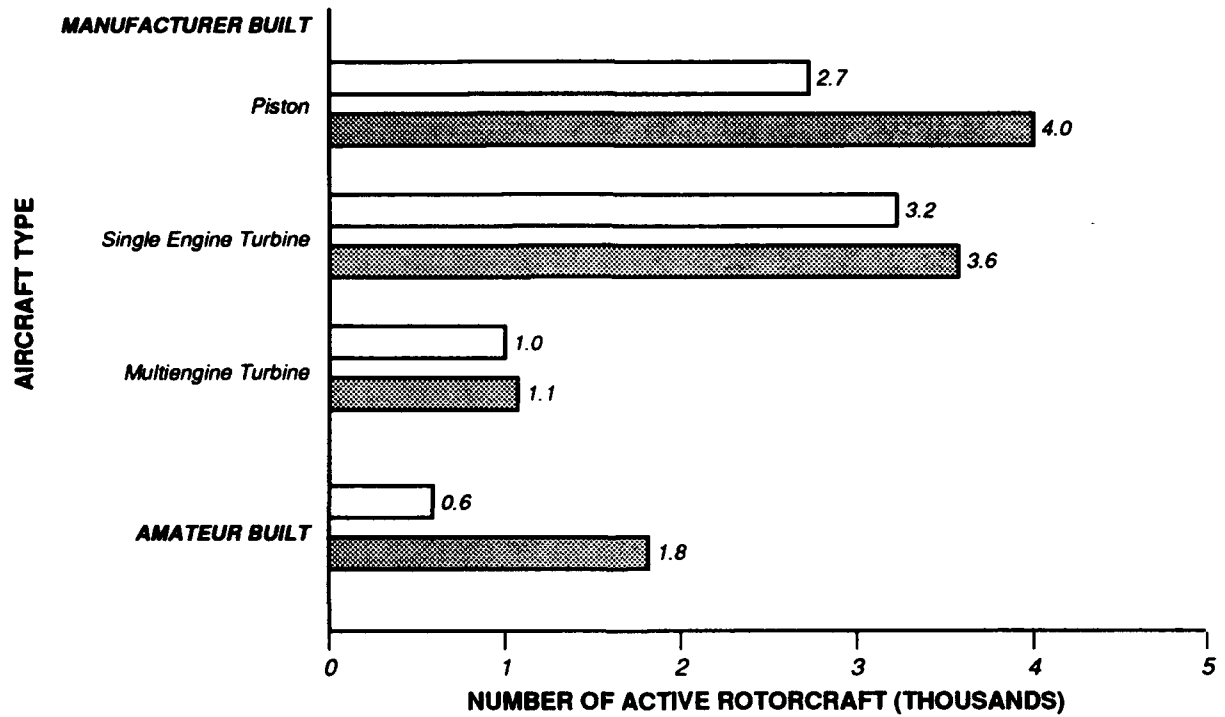
On a national level, the results of the 1989 Rotorcraft Activity Survey revealed that:

- o More than 2.8 million hours were flown by the 7,488 active rotorcraft in the U.S. fleet during 1989.
- o The average annual flight time per active rotorcraft was 390 hours, almost two and a half times the average flight time of the 1989 general aviation fixed wing fleet (158 hours).
- o Active rotorcraft comprised approximately 72 percent of the registered rotorcraft fleet.

The following observations can be derived from Tables 2.1 through 2.4:

- o There is a great deal of variation in the total number of hours flown, number of active aircraft, and average hours flown among all types of rotorcraft.
- o In 1989, piston rotorcraft, the rotorcraft type with the largest number registered (3,994), had 67.2 percent of their fleet active. However, single engine turbine rotorcraft, the rotorcraft type with the second largest number of rotorcraft registered (3,616), had 89.8 percent of their fleet active.
- o Single engine turbine rotorcraft flew more than 54 percent of the total hours flown.
- o Multiengine turbine rotorcraft averaged the most hours flown per rotorcraft, with 552 average hours. The single engine turbine rotorcraft follow closely with an average of 481 hours.
- o The percentages of active rotorcraft in each region versus the total number of registered rotorcraft in each region range from a low of 62 percent in the Great Lakes region to a high of 86 percent in the Alaskan region.
- o The three regions with the greatest number of active rotorcraft are: the Western-Pacific with 1,458; the Southwestern with 1,413; and the Southern with 1,223. These three regions also had the highest number of total hours flown. The Southwestern ranked first with 779,136 hours, the Western-Pacific was second with 664,113 hours, and the Southern region had 342,154 hours.
- o The Southwestern region had the highest average hours flown, 577. This most likely can be attributed to the use of helicopters in offshore exploration for oil and natural gas in Louisiana and Texas, as well as law enforcement activities throughout the region.
- o The state with the largest estimated number of active rotorcraft is California with 1,072 active rotorcraft. The next states with the largest estimated number of active rotorcraft are Louisiana with 645 and Florida with 635.

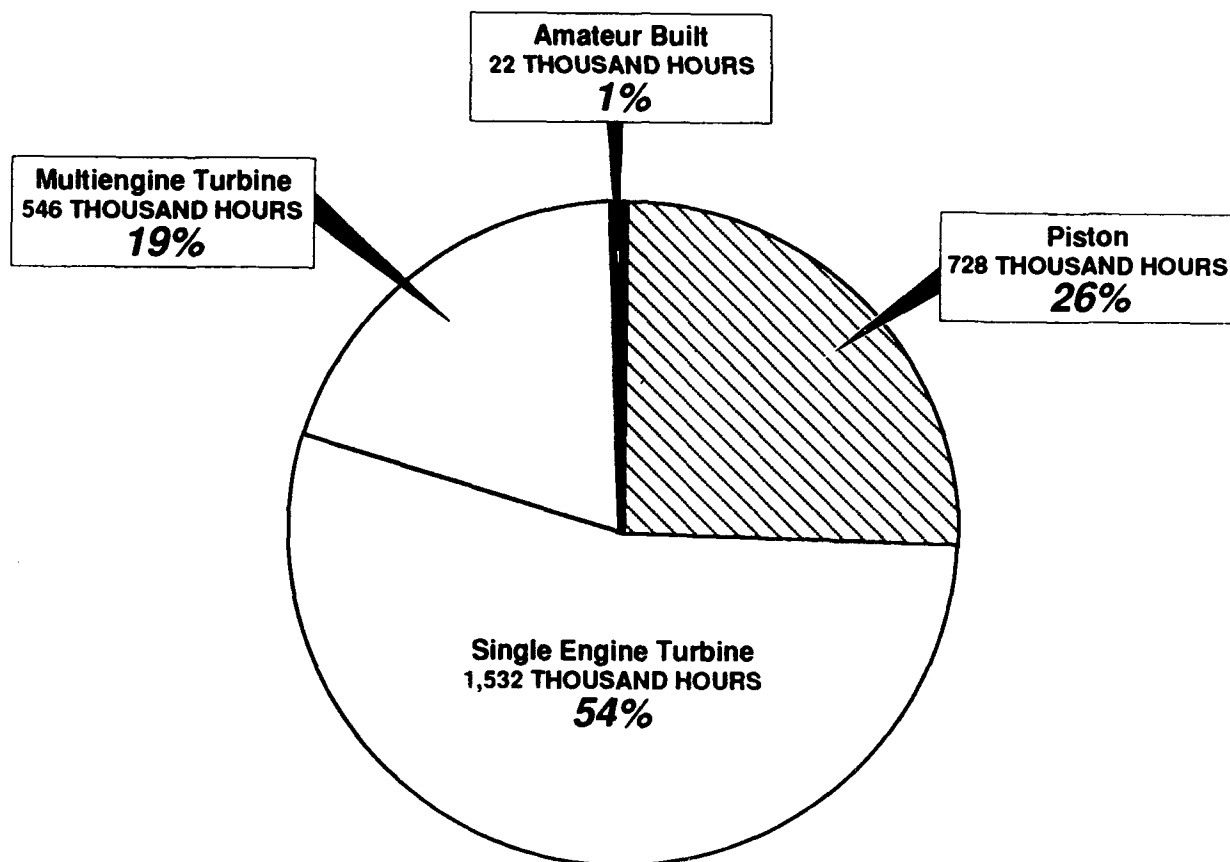
Figure 2.1
1989 ACTIVE VS. REGISTERED ROTORCRAFT
BY ROTORCRAFT TYPE



KEY
 □ = Active
 ■ = Registered

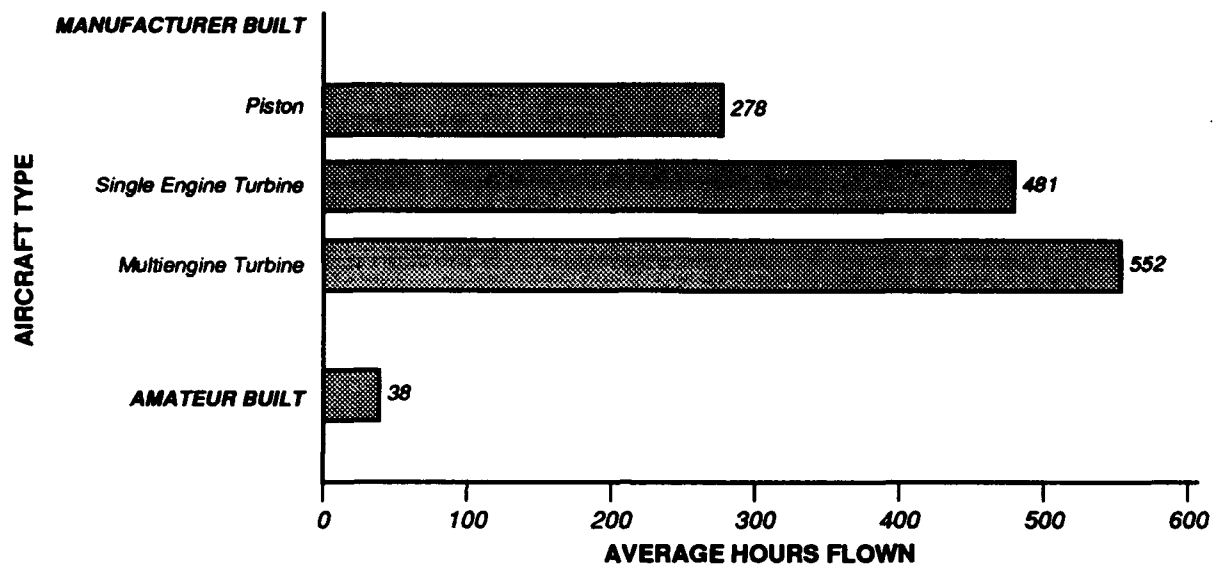
SOURCE: Table 2.1

Figure 2.2
1989 ROTORCRAFT TOTAL FLIGHT HOURS
BY ROTORCRAFT TYPE



SOURCE: Table 2.1

Figure 2.3
1989 ROTORCRAFT AVERAGE HOURS FLOWN
BY ROTORCRAFT TYPE



SOURCE: Table 2.1

2.1 1989 ROTORCRAFT POPULATION SIZE, ACTIVE ROTORCRAFT, TOTAL FLIGHT HOURS AND AVERAGE FLIGHT HOURS
BY ROTORCRAFT TYPE

PAGE 1 OF 1

ROTORCRAFT TYPE	ROTORCRAFT POPULATION SIZE	ESTIMATE OF NUMBER ACTIVE	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR	ESTIMATE OF TOTAL HOURS FLOWN	PERCENT STANDARD ERROR	ESTIMATE OF AVERAGE HOURS	PERCENT STANDARD ERROR
MANUFACTURER BUILT:									
PISTON TOTAL:	3,994	2,684	1.2	67.2	0.8	728,125	2.2	277.8	2.0
TURBINE: SINGLE ENGINE	3,616	3,248	0.5	89.8	0.4	1,532,270	1.0	480.5	0.9
TURBINE: MULTI - ENGINE	1,069	984	0.7	92.0	0.7	546,471	2.0	551.8	1.9
TURBINE TOTAL:	4,685	4,232	0.4	90.3	0.4	2,078,741	0.9	496.5	0.8
MANUFACTURER BUILT TOTAL:	8,679	6,916	0.5	79.7	0.4	2,806,866	0.9	417.3	0.8
AMATEUR BUILT TOTAL:	1,790	572	3.5	32.0	1.1	21,830	7.5	38.2	6.7
TOTAL - ALL ROTORCRAFT:	10,469	7,488	0.6	71.5	0.4	2,828,697	0.9	390.2	0.8

2
1
6

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

2.2 1989 ROTORCRAFT POPULATION SIZE, ACTIVE ROTORCRAFT, TOTAL FLIGHT HOURS AND AVERAGE FLIGHT HOURS
BY SDR ROTORCRAFT MANUFACTURER/MODEL GROUP

PAGE 1 OF 3

MANUFACTURER/ MODEL GROUP	ROTORCRAFT POPULATION SIZE	ESTIMATE OF NUMBER ACTIVE	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR	ESTIMATE OF TOTAL HOURS FLOWN	PERCENT STANDARD ERROR	ESTIMATE OF AVERAGE HOURS	PERCENT STANDARD ERROR
OTHER 1 (*)	126	93	14.7	73.8	10.9	9,901	49.7	106.5	47.5
OTHER 2 (*)	113	91	4.4	80.7	3.5	36,571	9.9	401.1	8.8
OTHER 3 (*)	142	111	3.3	78.4	2.6	69,599	8.2	625.1	7.5
OTHER 4 (*)	1,790	572	3.5	31.9	1.1	21,830	7.5	38.2	6.7
AERORSJ2	38	20	13.3	51.7	6.9	576	21.5	29.3	16.9
AEROSPAS355	109	108	0.6	99.0	0.6	58,868	2.9	545.6	2.9
AEROSPSA316	91	61	6.4	67.4	4.3	27,516	10.0	448.9	7.7
AGUSTA205	32	30	3.4	95.0	3.2	11,856	9.9	390.0	9.3
AGUSTAA109	66	66	0.0	100.0	0.0	15,372	8.7	232.9	8.7
AIRSPC18	23	15	14.9	64.3	9.6	939	40.0	63.5	37.1
ARCNEH37	45	0	0.0	0.0	0.0	0	0.0	0.0	0.0
BELL 204	26	22	5.2	84.3	4.4	5,621	8.4	256.6	6.6
BELL 206	1,900	1,810	0.3	95.3	0.3	979,907	1.0	541.5	1.0
BELL 212	117	106	3.1	90.2	2.8	56,155	6.2	532.1	5.4
BELL 222	83	70	2.5	84.3	2.1	26,601	4.5	380.3	3.7
BELL 412	61	61	0.0	100.0	0.0	41,651	5.8	682.8	5.8
BELL 47	838	579	2.3	69.1	1.6	155,156	5.3	267.8	4.8
BOLKMS105	175	171	1.9	97.7	1.9	107,506	6.1	628.6	5.8
BOLKMS117	113	110	2.9	97.2	2.8	54,321	7.2	494.5	6.6
ENSTRMF28	421	330	2.2	78.5	1.7	61,181	9.8	185.1	9.6
H23/HTE	36	12	22.9	32.1	7.3	2,302	48.5	199.2	42.8

2.2 1989 ROTORCRAFT POPULATION SIZE, ACTIVE ROTORCRAFT, TOTAL FLIGHT HOURS AND AVERAGE FLIGHT HOURS
BY SDR ROTORCRAFT MANUFACTURER/MODEL GROUP

PAGE 2 OF 3

MANUFACTURER/ MODEL GROUP	ROTORCRAFT POPULATION SIZE	ESTIMATE OF NUMBER ACTIVE	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR	ESTIMATE OF TOTAL HOURS FLOWN	PERCENT STANDARD ERROR	ESTIMATE OF AVERAGE HOURS	PERCENT STANDARD ERROR
H34/55	29	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS
HILLERFH1100	64	29	20.7	45.2	9.4	3,871	34.7	133.7	27.8
HILLERUH12	585	373	3.0	63.8	1.9	78,181	5.9	210.1	5.2
HUGHES269	676	476	2.0	70.4	1.4	162,192	4.5	340.9	4.0
HUGHES369	600	551	1.0	91.8	0.9	245,743	3.5	446.3	3.3
HYNES B2	126	53	10.2	41.9	4.3	3,577	15.9	67.7	12.2
MACDOUG369	61	61	0.0	100.0	0.0	30,873	5.7	506.1	5.7
MILITARY204	201	142	6.3	70.8	4.5	17,028	12.1	119.6	10.3
MILITARY47	395	235	3.7	59.4	2.2	46,384	8.0	198.1	7.2
MODFD47	53	37	10.8	70.4	7.6	11,898	20.3	319.0	17.2
ORLHELH19	73	44	33.5	60.3	20.2	7,014	59.1	159.2	48.7
ORLHELH58	33	11	60.3	33.3	20.1	220	60.3	20.0	0.0
ROBSINR22	408	395	0.6	96.9	0.6	176,948	3.2	447.6	3.2
SCHWZH269	54	48	2.0	89.6	1.8	27,400	4.9	566.2	4.5
SKRSKYS55	34	7	55.0	20.0	11.0	323	58.7	47.5	20.5
SKRSKYS58	72	35	17.9	48.6	8.7	4,073	21.0	116.4	10.8
SKRSKYS58T	38	27	11.2	71.4	8.0	12,170	19.4	448.4	15.9
SKRSKYS61	28	14	6.7	49.6	3.3	12,133	10.2	873.6	7.7
SKRSKYS76	175	167	1.0	95.6	0.9	104,265	2.8	623.4	2.6
SNIAS 350	271	255	1.1	94.0	1.0	127,895	2.9	501.9	2.7
SNIAS SA318	21	0	0.0	0.0	0.0	0	0.0	0.0	0.0

2.2 1989 ROTORCRAFT POPULATION SIZE, ACTIVE ROTORCRAFT, TOTAL FLIGHT HOURS AND AVERAGE FLIGHT HOURS
BY SDR ROTORCRAFT MANUFACTURER/MODEL GROUP

PAGE 3 OF 3

MANUFACTURER/ MODEL GROUP	ROTORCRAFT POPULATION SIZE	ESTIMATE OF NUMBER ACTIVE	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR	ESTIMATE OF TOTAL HOURS FLOWN	PERCENT STANDARD ERROR	ESTIMATE OF AVERAGE HOURS	PERCENT STANDARD ERROR
SNIAS SA341	29	20	15.4	68.7	10.6	2,958	25.8	148.6	20.8
TH55	60	42	3.8	70.1	2.6	4,584	7.7	108.9	6.7
TOMCAT	38	24	13.1	63.8	8.3	4,830	16.4	199.2	9.8
TOTAL	10,469	7,488	0.6	71.5	0.4	2,828,696	0.9	390.2	0.8

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

(*) THE "OTHER" CATEGORIES REPRESENT:

- OTHER 1 - MANUFACTURER BUILT - PISTON
- OTHER 2 - MANUFACTURER BUILT - TURBINE-SINGLE ENGINE
- OTHER 3 - MANUFACTURER BUILT - TURBINE-MULTI ENGINE
- OTHER 4 - AMATEUR BUILT

"DIS" INDICATES AN ESTIMATE WAS DELETED TO AVOID ANY POSSIBLE DISCLOSURE OF INDIVIDUAL RESPONSES.

2.3 1989 ROTORCRAFT POPULATION SIZE, ACTIVE ROTORCRAFT, TOTAL FLIGHT HOURS AND AVERAGE FLIGHT HOURS
BY REGION OF BASED ROTORCRAFT

PAGE 1 OF 1

REGION	ROTORCRAFT POPULATION SIZE	ESTIMATE OF NUMBER ACTIVE	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR	ESTIMATE OF TOTAL HOURS FLOWN	PERCENT STANDARD ERROR	ESTIMATE OF AVERAGE HOURS	PERCENT STANDARD ERROR
ALASKAN	289	248	5.2	85.7	6.3	101,441	5.8	429.5	3.5
CENTRAL	335	216	6.5	64.4	5.4	62,804	6.8	310.3	5.9
EASTERN	1,333	1,004	2.8	75.3	2.8	281,562	3.2	287.7	2.5
GREAT LAKES	1,208	752	3.5	62.2	2.7	182,934	4.5	255.3	3.6
NEW ENGLAND	378	292	4.8	77.4	5.1	84,710	5.4	312.0	3.9
NORTHWEST MT.	1,264	882	3.1	69.8	2.8	271,558	3.9	323.5	3.3
SOUTHERN	1,751	1,223	2.6	69.9	2.4	342,154	2.7	297.0	2.7
SOUTHWESTERN	1,863	1,413	2.1	75.9	2.1	779,136	2.2	577.1	1.5
WESTERN-PACIFIC	1,983	1,458	2.1	73.5	2.1	664,113	2.2	468.1	2.1
TOTAL	10,469	7,488	0.6	71.5	0.4	2,810,971	1.1	387.9	0.8

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

2.4 1989 ROTORCRAFT POPULATION SIZE, ACTIVE ROTORCRAFT, TOTAL FLIGHT HOURS AND AVERAGE FLIGHT HOURS
BY STATE OF BASED ROTORCRAFT

PAGE 1 OF 3

STATE	ROTORCRAFT POPULATION SIZE	ESTIMATE OF NUMBER ACTIVE	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR	ESTIMATE OF TOTAL HOURS FLOWN	PERCENT STANDARD ERROR	ESTIMATE OF AVERAGE HOURS	PERCENT STANDARD ERROR
ALABAMA	163	96	10.4	58.8	7.9	22,813	10.5	276.9	10.8
ALASKA	289	248	5.2	85.7	6.3	101,441	5.8	429.5	3.5
ARIZONA	293	176	7.4	60.0	5.9	69,153	7.1	400.2	5.3
ARKANSAS	66	37	16.2	56.8	10.8	7,641	20.2	212.7	14.5
CALIFORNIA	1,430	1,072	2.5	75.0	2.6	449,346	2.5	431.3	2.4
COLORADO	151	101	9.9	67.3	9.0	32,864	11.2	344.8	9.7
CONNECTICUT	78	66	10.6	84.7	12.1	23,984	12.4	385.0	7.8
DELAWARE	39	33	18.2	85.5	20.6	9,434	15.9	288.8	11.7
DIST. OF COLUMBIA	32	32	21.9	99.0	31.4	5,229	35.6	169.4	29.5
FLORIDA	869	635	4.3	73.0	4.1	168,751	3.7	279.3	4.4
GEORGIA	192	127	7.1	66.2	6.5	54,500	6.8	462.0	5.1
HAWAII	150	126	6.3	83.6	7.5	103,653	6.5	842.5	4.0
IDAHO	108	86	9.3	79.7	10.1	22,833	10.5	263.4	10.3
ILLINOIS	230	137	10.2	59.5	7.5	27,473	11.6	203.8	7.3
INDIANA	183	124	8.1	68.1	7.1	29,352	8.9	248.1	8.2
IOWA	91	46	17.4	50.7	10.3	12,490	15.8	303.8	11.8
KANSAS	73	45	13.3	61.5	10.7	11,266	14.6	246.5	19.0
KENTUCKY	86	68	8.8	78.9	9.8	15,884	10.4	251.7	7.2
LOUISIANA	704	645	2.9	91.6	3.8	511,658	2.9	807.7	1.3
MAINE	43	27	18.5	63.8	16.2	4,623	21.2	178.3	16.9
MARYLAND	111	101	7.9	90.2	9.7	31,635	8.2	318.7	6.2
MASSACHUSETTS	145	107	8.4	73.7	8.1	39,631	7.8	389.7	5.3
MICHIGAN	216	151	7.3	69.8	6.7	36,169	7.9	253.5	6.7

2.4 1989 ROTORCRAFT POPULATION SIZE, ACTIVE ROTORCRAFT, TOTAL FLIGHT HOURS AND AVERAGE FLIGHT HOURS
BY STATE OF BASED ROTORCRAFT

PAGE 2 OF 3

STATE	ROTORCRAFT POPULATION SIZE	ESTIMATE OF NUMBER ACTIVE	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR	ESTIMATE OF TOTAL HOURS FLOWN	PERCENT STANDARD ERROR	ESTIMATE OF AVERAGE HOURS	PERCENT STANDARD ERROR
MINNESOTA	140	73	11.0	52.1	7.0	17,862	10.8	251.7	6.3
MISSISSIPPI	62	51	11.8	81.8	14.4	12,107	17.4	242.2	11.5
MISSOURI	152	114	8.8	75.1	8.5	38,258	8.9	358.1	6.6
MONTANA	97	69	15.9	70.8	14.0	18,796	27.0	265.7	12.6
NEBRASKA	20	11	27.3	56.8	21.1	790	32.4	80.5	14.5
NEVADA	109	85	10.6	77.3	11.2	41,962	12.6	496.6	16.1
NEW HAMPSHIRE	78	67	9.0	87.0	11.4	13,568	9.3	207.7	6.4
NEW JERSEY	239	202	6.4	84.5	7.5	59,221	5.4	300.3	3.5
NEW MEXICO	63	40	25.0	63.8	18.9	7,093	15.6	223.4	14.6
NEW YORK	334	239	5.9	71.6	5.4	67,922	6.5	299.5	6.0
NORTH CAROLINA	135	88	9.1	65.0	8.2	22,399	11.4	268.2	9.3
NORTH DAKOTA	28	23	17.4	81.4	30.3	8,013	19.6	356.9	16.5
OHIO	296	190	6.8	64.0	5.8	53,608	10.7	294.2	9.5
OKLAHOMA	160	92	12.0	57.5	8.3	21,549	10.1	251.1	7.4
OREGON	406	282	5.3	69.4	4.9	96,421	5.9	355.4	4.6
PENNSYLVANIA	408	258	6.2	63.3	5.1	70,913	7.4	276.0	5.7
RHODE ISLAND	15	10	20.0	67.5	19.9	2,041	23.8	204.0	15.2
SOUTH CAROLINA	115	67	13.4	58.5	9.4	21,525	12.6	327.8	12.3
SOUTH DAKOTA	13	9	33.3	73.3	29.0	1,838	42.5	199.4	25.5
TENNESSEE	129	92	8.7	71.6	8.2	24,176	10.4	276.3	6.2
TEXAS	870	599	3.3	68.8	3.1	231,197	3.9	399.2	3.0
UTAH	106	70	10.0	66.0	9.2	22,335	13.5	383.5	7.6
VERMONT	20	15	26.7	75.9	24.0	862	37.0	90.1	21.6

2.4 1989 ROTORCRAFT POPULATION SIZE, ACTIVE ROTORCRAFT, TOTAL FLIGHT HOURS AND AVERAGE FLIGHT HOURS
BY STATE OF BASED ROTORCRAFT

PAGE 3 OF 3

STATE	ROTORCRAFT POPULATION SIZE	ESTIMATE OF NUMBER ACTIVE	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR	ESTIMATE OF TOTAL HOURS FLOWN	PERCENT STANDARD ERROR	ESTIMATE OF AVERAGE HOURS	PERCENT STANDARD ERROR
VIRGINIA	123	97	11.3	78.9	11.4	24,649	13.5	261.7	5.9
WASHINGTON	349	233	6.9	66.9	5.7	71,586	6.7	325.7	6.7
WEST VIRGINIA	46	41	12.2	90.1	17.8	12,559	11.7	308.9	6.1
WISCONSIN	103	45	15.6	43.8	8.6	8,619	22.0	214.6	11.5
WYOMING	47	40	15.0	85.6	16.5	6,723	14.5	194.9	7.1
PUERTO RICO	0	0	0.0	0.0	0.0	0	0.0	0.0	0.0
TOTAL	10,469	7,488	0.6	71.5	0.4	2,770,415	6.2	390.2	0.8

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

CHAPTER III

LANDINGS AND ROTORCRAFT BASE FACILITIES

Another aviation activity measure used to indicate growth trends and activity levels in the rotorcraft fleet is number of landings. The first 4 tables in this chapter, Tables 3.1-3.4, contain data on the number of rotorcraft landing at the five types of landing facilities: 1) airports; 2) heliports; 3) helipads at airports; 4) offshore platforms; and 5) other. The data in these tables are presented by four distinct factors: 1) Rotorcraft Type; 2) Service Difficulty Reporting (SDR) Rotorcraft Manufacturer/Model Group; 3) Region of Based Rotorcraft; and 4) State of Based Rotorcraft.

Tables 3.5-3.8 provide estimates of the average number of landings per flight hour at each of the five landing facility types by the four factors listed above.

Table 3.9 presents total rotorcraft landings by expanded use category by rotorcraft type. (Chapter 4, Primary Use by Expanded Use Category, discusses rotorcraft expanded use categories in greater detail).

The last group of tables in this chapter, Tables 3.10-3.13, present data on the number of active rotorcraft based at airports, heliports or some other base facility type as of December 31, 1989, by: 1) rotorcraft type; 2) SDR Rotorcraft Manufacturing/Model Group; 3) Region of Based Rotorcraft; and 4) State of Based Rotorcraft.

Four figures are included in this chapter. Figure 3.1 shows the number of rotorcraft landings by aircraft type; Figure 3.2 displays the number of landings by type of landing facility; Figure 3.3 shows the number of rotorcraft landings by expanded use category; and Figure 3.4 shows the number and percent of active rotorcraft by base facility type.

The following facts can be derived from Tables 3.1-3.9:

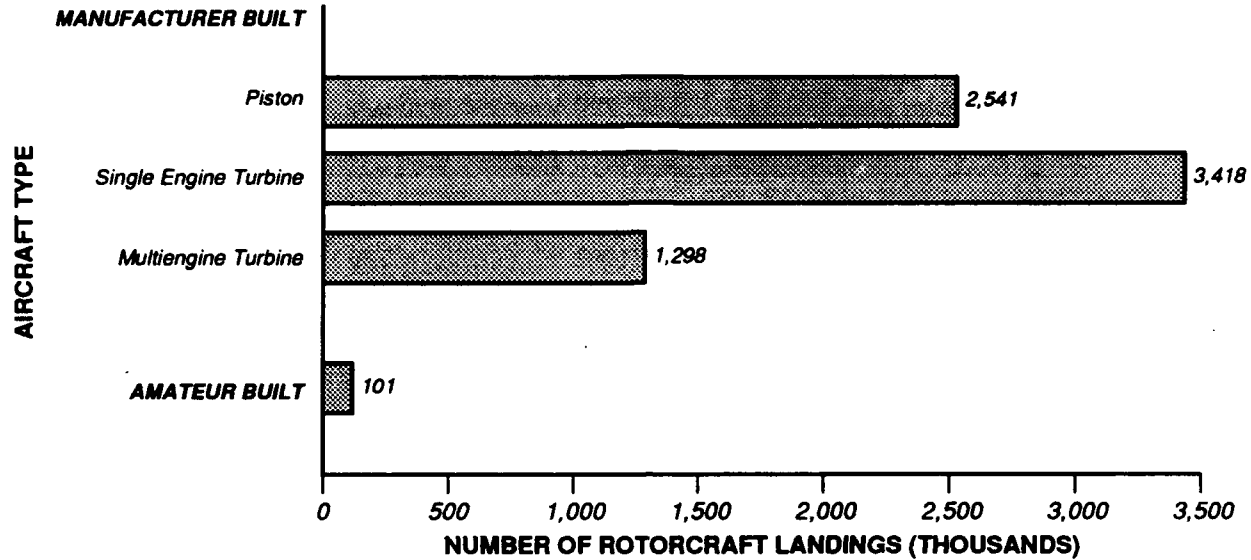
- o During 1989, the rotorcraft fleet made almost 7.4 million landings.
- o The majority of rotorcraft landings, 29 percent, were made at some "other" type of landing facility; 23.3 percent were made at helipads at airports; 22.3 percent were made at heliports; 20.1 percent were made at airports; and 4.9 percent were made at offshore platforms.
- o California accounted for 18.9 percent of the 1989 rotorcraft landings. Louisiana was second with 17.2 percent, and Texas was third with 6.3 percent of the rotorcraft landings.
- o During 1989, 47.8 percent of all landings by piston engine rotorcraft were made at "other" types of landing facilities; 31.3 percent of the landings by single engine turbine rotorcraft were made at heliports; 43.5 percent of the landings made by multiengine turbine rotorcraft were made at heliports; and 48.1 percent of the landings by amateur built rotorcraft were made at helipads at airports.

- o The three regions with the greatest number of landings are: Southwestern with nearly 2 million landings; Western-Pacific with 1.7 million; and Eastern with more than 951,000 landings.
- o Amateur built rotorcraft averaged the greatest number of landings per flight hour, 4.6. Piston rotorcraft had 3.5, multiengine turbine rotorcraft had 2.4, and single engine turbine rotorcraft had 2.2 landings per hour.
- o The average number of landings per flight hour was 3.4 in the Eastern region; 2.9 in the Great Lakes region; and 2.7 in the Northwest Mountain region.
- o The 50-state average number of landings per flight hour was 2.6. The highest average number of landings per flight hour was experienced by Virginia, with 12 landings per flight hour.
- o Of the 7.4 million landings in 1989, 1.8 million were conducted for air taxi purposes, 1.3 million for aerial application purposes, and 1.1 million for instructional purposes.
- o Most piston rotorcraft landings were in the aerial application use category (45 percent). The majority of single and multiengine turbine rotorcraft landings were in the air taxi category (with 37 and 35 percent, respectively), and most amateur built rotorcraft landings were in the personal use category (25 percent).

The following observations can be derived from Tables 3.10-3.13:

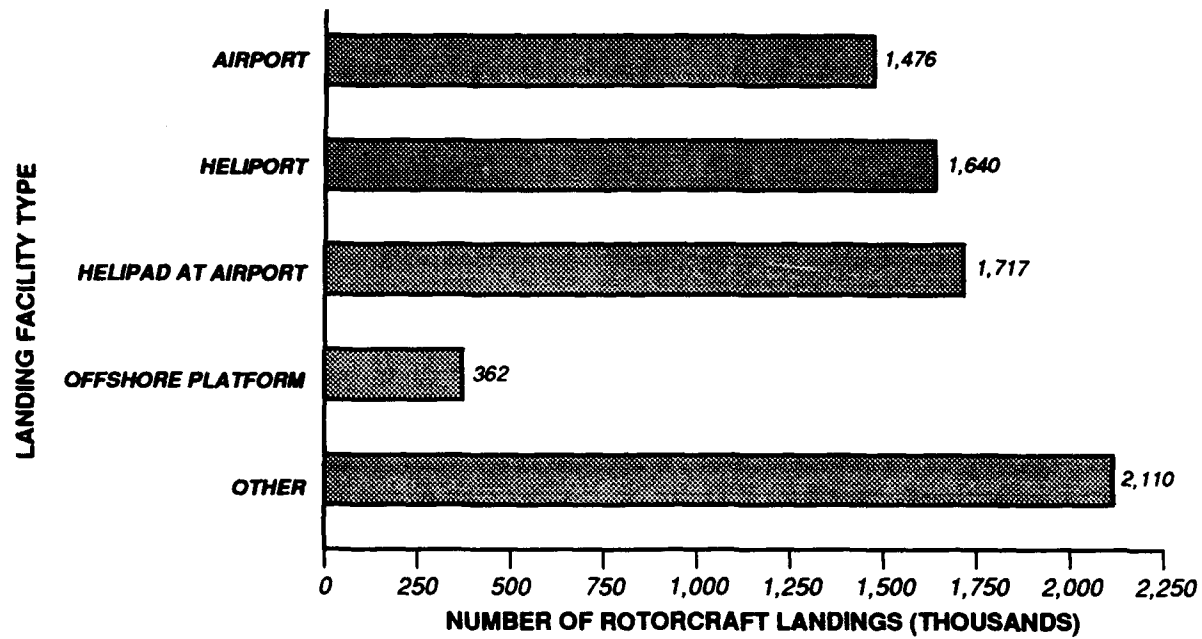
- o Over 51 percent of all active rotorcraft are based at airports. Heliports account for another 34 percent. The remaining active rotorcraft are based at some "other" base facility type.
- o In all the regions except the Southwestern, active rotorcraft are primarily based at airports. The percentages of active rotorcraft based primarily at airports ranged from a low of 46 percent in the Central region to a high of 70 percent in the New England region. In the Southwestern region, however, the majority of active rotorcraft, 66 percent, are based at heliports.

Figure 3.1
1989 NUMBER OF ROTORCRAFT LANDINGS
BY ROTORCRAFT TYPE



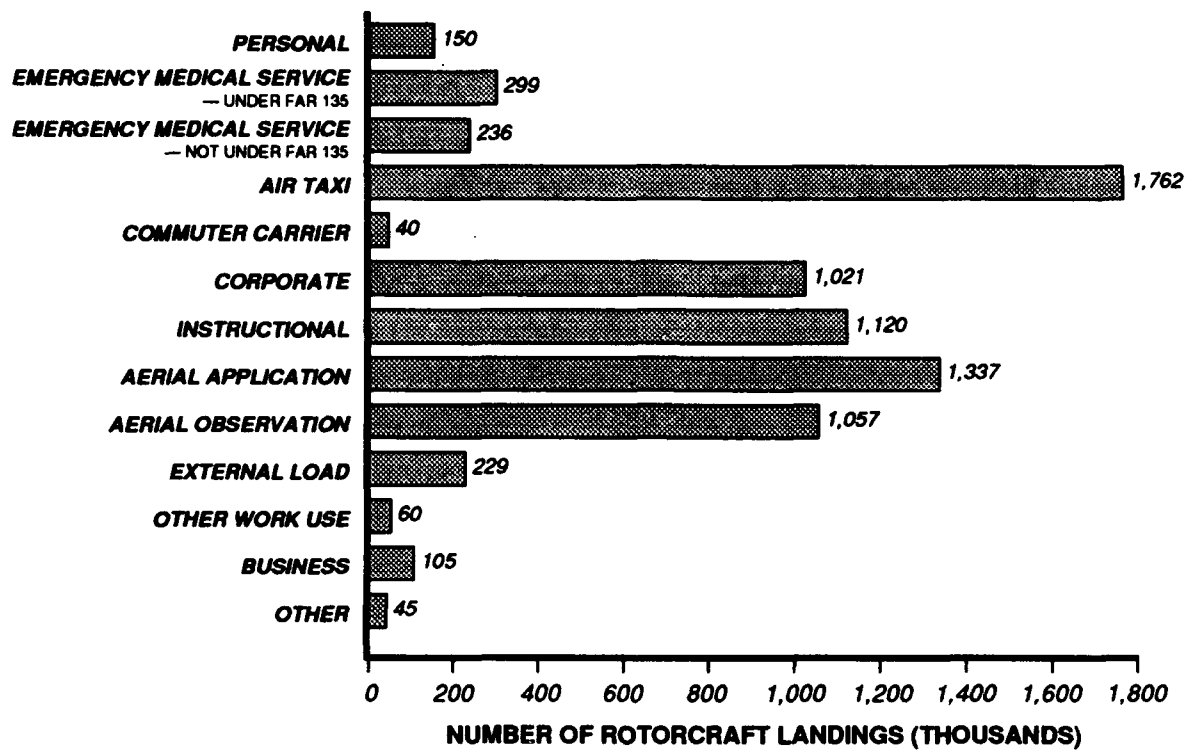
SOURCE: Table 3.1

Figure 3.2
1989 ROTORCRAFT LANDINGS
BY LANDING FACILITY TYPE



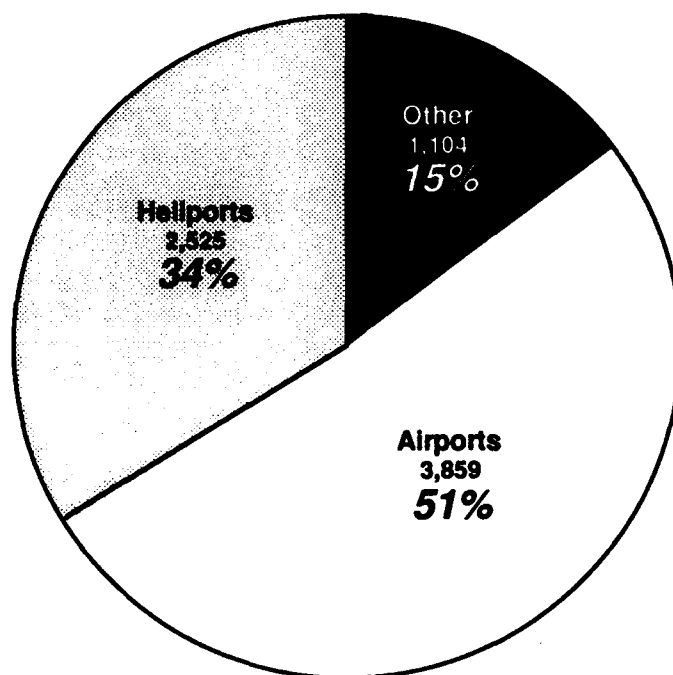
SOURCE: Table 3.1

Figure 3.3
1989 NUMBER OF ROTORCRAFT LANDINGS
BY EXPANDED USE CATEGORY



SOURCE: Table 3.9

Figure 3.4
1989 ACTIVE ROTORCRAFT
BY BASE FACILITY TYPE



SOURCE: Table 3.10

3.1 1989 TOTAL ROTORCRAFT LANDINGS BY LANDING FACILITY TYPE
BY ROTORCRAFT TYPE

PAGE 1 OF 1

ROTORCRAFT TYPE	TOTAL LANDINGS	LANDING FACILITY TYPE			OFFSHORE PLATFORM	OTHER
		AIRPORTS	HELIPORT	HELIPAD/ AIRPORTS		
MANUFACTURER BUILT:						
PISTON TOTAL:						
EST. LANDINGS	2,540,599	791,611	7,914	407,048	95,043	1,214,137
% STD. ERROR	2.9	3.5	23.1	12.1	7.0	3.0
TURBINE: SINGLE ENGINE						
EST. LANDINGS	3,417,711	548,009	1,068,251	813,693	204,362	779,272
% STD. ERROR	1.3	2.8	3.7	3.3	4.8	2.5
TURBINE: MULTI - ENGINE						
EST. LANDINGS	1,297,740	98,195	563,894	447,841	61,975	102,656
% STD. ERROR	3.2	7.8	7.2	6.1	16.7	9.5
TURBINE TOTAL:						
EST. LANDINGS	4,715,450	646,204	1,632,145	1,261,534	266,336	881,928
% STD. ERROR	1.3	2.6	3.5	2.9	4.8	2.4
MANUFACTURER BUILT TOTAL:						
EST. LANDINGS	7,256,049	1,437,815	1,640,059	1,668,582	361,380	2,096,065
% STD. ERROR	1.3	2.4	3.5	4.1	4.0	2.2
AMATEUR BUILT:						
EST. LANDINGS	100,935	37,869	0	48,503	342	13,496
% STD. ERROR	7.6	2.3	0.0	19.9	47.7	4.1
TOTAL						
EST. LANDINGS	7,356,984	1,475,685	1,640,059	1,717,085	361,722	2,109,561
% STD. ERROR	1.3	1.9	3.5	4.1	3.9	2.0

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

3.2 1989 TOTAL ROTORCRAFT LANDINGS BY LANDING FACILITY TYPE
BY SDR ROTORCRAFT MANUFACTURER/MODEL GROUP

PAGE 1 OF 6

MANUFACTURER/ MODEL GROUP	TOTAL LANDINGS	LANDING FACILITY TYPE			OFFSHORE PLATFORM	OTHER
		AIRPORTS	HELIPORT	HELIPAD/ AIRPORTS		
OTHER 1 (*) EST. LANDINGS & STD. ERROR	63,380 64.1	3,882 70.0	0 0.0	38,156 137.6	0 0.0	12,884 26.0
OTHER 2 (*) EST. LANDINGS & STD. ERROR	59,115 9.6	10,025 16.1	0 0.0	13,317 22.5	2,198 44.0	33,899 18.2
OTHER 3 (*) EST. LANDINGS & STD. ERROR	131,582 3.4	9,340 15.3	39,689 11.4	65,137 8.5	663 48.6	14,255 19.2
OTHER 4 (*) EST. LANDINGS & STD. ERROR	100,935 6.7	37,809 2.3	0 0.0	48,503 19.9	342 47.7	13,496 4.1
AERORSJ2 EST. LANDINGS & STD. ERROR	1,168 11.0	1,168 11.0	0 0.0	0 0.0	0 0.0	0 0.0
AEROSPAS355 EST. LANDINGS & STD. ERROR	114,070 5.2	4,426 30.8	65,640 6.5	32,562 17.9	3,750 31.2	8,532 28.5
AEROSPSA316 EST. LANDINGS & STD. ERROR	81,633 2.3	0 0.0	0 0.0	13,414 13.2	2,181 42.2	68,241 5.6
AGUSTA205 EST. LANDINGS & STD. ERROR	39,174 5.2	224 53.0	0 0.0	1,228 48.8	0 0.0	41,456 5.9
AGUSTAA109 EST. LANDINGS & STD. ERROR	46,880 8.2	9,793 17.0	0 0.0	24,974 19.0	2,239 47.6	11,026 26.3

3.2 1989 TOTAL ROTORCRAFT LANDINGS BY LANDING FACILITY TYPE
BY SDR ROTORCRAFT MANUFACTURER/MODEL GROUP

PAGE 2 OF 6

MANUFACTURER/ MODEL GROUP	TOTAL LANDINGS	LANDING FACILITY TYPE				OFFSHORE PLATFORM	OTHER
		AIRPORTS	HELIPORT	HELIPAD/ AIRPORTS			
AIRSPC18 EST. LANDINGS % STD. ERROR	2,638 24.5	2,207 29.7	296 48.9	0 0.0	0 0.0	0 0.0	
ARCNEH37 EST. LANDINGS % STD. ERROR	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	
BELL 204 EST. LANDINGS % STD. ERROR	16,938 3.3	370 8.3	0 0.0	6,495 23.0	0 0.0	1,873 33.7	
BELL 206 EST. LANDINGS % STD. ERROR	2,389,016 1.7	290,590 3.5	1,046,618 3.8	558,948 4.2	97,474 6.1	394,177 3.3	
BELL 212 EST. LANDINGS % STD. ERROR	149,377 6.6	18,628 24.8	114,450 10.0	2,409 63.3	0 0.0	15,462 22.0	
BELL 222 EST. LANDINGS % STD. ERROR	57,306 3.7	5,025 18.2	7,901 10.9	26,078 8.2	8,077 23.3	8,045 16.8	
BELL 412 EST. LANDINGS % STD. ERROR	73,275 6.9	6,041 40.6	42,363 14.0	10,674 26.1	0 0.0	14,118 24.1	
BELL 47 EST. LANDINGS % STD. ERROR	523,008 3.1	63,774 11.0	2,434 58.9	30,251 11.1	32,781 15.5	395,127 4.5	
BOLKMS105 EST. LANDINGS % STD. ERROR	220,348 14.4	2,057 65.3	162,578 24.1	36,641 25.8	4,009 49.7	10,429 47.6	

3.2 1989 TOTAL ROTORCRAFT LANDINGS BY LANDING FACILITY TYPE
BY SDR ROTORCRAFT MANUFACTURER/MODEL GROUP

PAGE 3 OF 6

MANUFACTURER/ MODEL GROUP	TOTAL LANDINGS	LANDING FACILITY TYPE				OFFSHORE PLATFORM	OTHER
		AIRPORTS	HELIPORT	HELIPAD/ AIRPORTS			
BOLEMS117 EST. LANDINGS & STD. ERROR	248,605 6.7	19,544 45.7	0 0.0	190,395 13.0	26,548 47.9	7,625 78.0	
ENSTRMF28 (1) EST. LANDINGS & STD. ERROR	77,301 7.8	39,114 11.8	0 0.0	31,069 15.8	2,082 21.0	8,102 13.5	
ENSTRMF28 (2) EST. LANDINGS & STD. ERROR	46,215 9.5	16,674 21.3	0 0.0	7,921 32.6	7,806 24.9	12,913 16.6	
H23/HTE EST. LANDINGS & STD. ERROR	1,384 6.2	0 0.0	0 0.0	0 0.0	0 0.0	1,116 10.4	
H34/55 EST. LANDINGS & STD. ERROR	DIS	DIS	DIS	DIS	DIS	DIS	
HILLERFH100 EST. LANDINGS & STD. ERROR	4,383 6.9	3,130 16.5	0 0.0	258 41.2	0 0.0	1,083 26.4	
HILLERUH12 (1) EST. LANDINGS & STD. ERROR	374,222 5.4	32,780 11.2	2,449 22.6	115,881 17.0	0 0.0	220,298 4.7	
HILLERUH12 (2) EST. LANDINGS & STD. ERROR	20,224 11.8	229 31.3	0 0.0	181 53.8	2,249 29.8	19,207 13.3	
HUGHES269 EST. LANDINGS & STD. ERROR	401,034 4.1	104,226 7.9	2,736 35.9	114,562 7.2	7,555 20.0	175,195 8.6	

3.2 1989 TOTAL ROTORCRAFT LANDINGS BY LANDING FACILITY TYPE
BY SDR ROTORCRAFT MANUFACTURER/MODEL GROUP

PAGE 4 OF 6

MANUFACTURER/ MODEL GROUP	TOTAL LANDINGS	LANDING FACILITY TYPE				OFFSHORE PLATFORM	OTHER
		AIRPORTS	HELIPORT	HELIPAD/ AIRPORTS			
HUGHES369 EST. LANDINGS & STD. ERROR	403,117 2.9	130,603 7.0	4,244 35.2	95,030 8.5	29,205 12.5	144,158 6.8	
HYNES B2 EST. LANDINGS & STD. ERROR	7,285 3.2	2,374 13.8	0 0.0	918 18.4	311 46.0	3,504 9.2	
MACDOUG369 EST. LANDINGS & STD. ERROR	54,642 5.4	38,167 8.8	0 0.0	4,160 14.8	7,677 22.0	6,093 16.4	
MILITARY204 EST. LANDINGS & STD. ERROR	36,129 6.9	2,559 19.4	0 0.0	5,314 23.8	6,008 37.1	22,688 12.1	
MILITARY47 (1) EST. LANDINGS & STD. ERROR	261,046 4.1	31,646 13.1	0 0.0	27,037 23.6	15,441 15.4	179,239 5.9	
MILITARY47 (2) EST. LANDINGS & STD. ERROR	3,791 11.9	0 0.0	0 0.0	1,827 32.8	0 0.0	2,249 43.7	
MODFD47 EST. LANDINGS & STD. ERROR	58,779 11.0	53 33.3	0 0.0	12,432 63.9	1,243 63.9	34,360 15.2	
ORLHELH19 EST. LANDINGS & STD. ERROR	71,066 33.4	0 0.0	0 0.0	0 0.0	0 0.0	71,066 33.4	
ORLHEL58 EST. LANDINGS & STD. ERROR	110 0.0	31 61.3	0 0.0	0 0.0	0 0.0	0 0.0	

3.2 1989 TOTAL ROTORCRAFT LANDINGS BY LANDING FACILITY TYPE
BY SDR ROTORCRAFT MANUFACTURER/MODEL GROUP

PAGE 5 OF 6

MANUFACTURER/ MODEL GROUP	TOTAL LANDINGS	LANDING FACILITY TYPE			OFFSHORE PLATFORM	OTHER
		AIRPORTS	HELIPORT	HELIPAD/ AIRPORTS		
ROBSINR22 EST. LANDINGS & STD. ERROR	608,745 4.5	497,297 5.8	0 0.0	19,749 15.0	32,049 14.6	59,795 11.2
SCHWZH269 EST. LANDINGS & STD. ERROR	48,492 6.9	5,323 18.4	0 0.0	15,001 7.6	2,913 16.5	24,211 15.8
SKRSKYS55 EST. LANDINGS & STD. ERROR	510 4.0	61 72.7	0 0.0	0 0.0	0 0.0	449 11.0
SKRSKYS58 EST. LANDINGS & STD. ERROR	8,053 8.2	1,296 78.1	0 0.0	26 78.1	0 0.0	6,379 6.4
SKRSKYS59T EST. LANDINGS & STD. ERROR	35,458 17.0	4,119 38.5	0 0.0	2,354 45.6	11,612 57.4	13,461 22.9
SKRSKYS61 EST. LANDINGS & STD. ERROR	18,351 4.0	9,377 10.8	0 0.0	0 0.0	64 32.8	7,038 8.4
SKRSKYS76 EST. LANDINGS & STD. ERROR	237,946 4.3	13,965 11.6	131,274 8.8	58,972 8.2	16,625 15.5	6,127 19.6
SNIAS 350 EST. LANDINGS & STD. ERROR	223,108 2.8	46,643 7.9	17,389 11.7	102,153 7.2	37,952 12.1	17,681 15.3
SNIAS SA318 EST. LANDINGS & STD. ERROR	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0

3.2 1989 TOTAL ROTORCRAFT LANDINGS BY LANDING FACILITY TYPE
BY SDR ROTORCRAFT MANUFACTURER/MODEL GROUP

PAGE 6 OF 6

MANUFACTURER/ MODEL GROUP	TOTAL LANDINGS	LANDING FACILITY TYPE			OFFSHORE PLATFORM	OTHER
		AIRPORTS	HELIPORT	HELIPAD/ AIRPORTS		
SNIAS SA341 EST. LANDINGS & STD. ERROR	4,767 9.1	4,674 14.2	0 0.0	1,092 44.5	0 0.0	95 54.9
TH55 EST. LANDINGS & STD. ERROR	12,921 3.9	4,599 9.3	0 0.0	1,966 15.9	669 24.3	5,641 9.5
TOMCAT EST. LANDINGS & STD. ERROR	17,468 7.2	455 52.9	0 0.0	0 0.0	0 0.0	16,770 9.1
TOTAL EST. LANDINGS & STD. ERROR	7,356,984 1.3	1,475,685 1.9	1,640,059 3.5	1,717,085 4.1	361,722 3.9	2,109,561 2.0

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

(*) THE "OTHER" CATEGORIES REPRESENT:

- OTHER 1 - MANUFACTURER BUILT - PISTON
- OTHER 2 - MANUFACTURER BUILT - TURBINE-SINGLE ENGINE
- OTHER 3 - MANUFACTURER BUILT - TURBINE-MULTI ENGINE
- OTHER 4 - AMATEUR BUILT

"DIS" INDICATES AN ESTIMATE WAS DELETED TO AVOID ANY POSSIBLE DISCLOSURE OF INDIVIDUAL RESPONSES.

(1) INDICATES MANUFACTURER BUILT - PISTON

(2) INDICATES MANUFACTURER BUILT - TURBINE-SINGLE ENGINE

3.3 1989 TOTAL ROTORCRAFT LANDINGS BY LANDING FACILITY TYPE
BY REGION OF BASED ROTORCRAFT

PAGE 1 OF 1

REGION	TOTAL LANDINGS	LANDING FACILITY TYPE			OTHER
		AIRPORTS	HELIPORT	HELIPAD/ AIRPORTS	OFFSHORE PLATFORM
ALASKAN EST. LANDINGS & STD. ERROR	248,360 6.7	52,035 10.8	28,332 42.2	29,152 29.0	2,495 83.2
CENTRAL EST. LANDINGS & STD. ERROR	127,037 7.9	19,255 10.5	0 0.0	69,806 11.9	6,305 29.3
EASTERN EST. LANDINGS & STD. ERROR	951,290 4.4	162,485 5.8	2,307 67.9	445,109 8.1	111,362 9.0
GREAT LAKES EST. LANDINGS & STD. ERROR	537,716 4.5	139,561 5.8	6,207 30.3	160,605 9.3	17,663 16.9
NEW ENGLAND EST. LANDINGS & STD. ERROR	214,147 6.3	97,553 8.5	0 0.0	77,435 11.5	3,997 29.1
NORTHWEST MT. EST. LANDINGS & STD. ERROR	729,578 4.5	97,912 10.8	124 240.1	84,757 11.9	29,229 14.6
SOUTHERN EST. LANDINGS & STD. ERROR	829,721 4.6	188,195 5.2	16,742 18.1	197,710 7.3	43,108 10.6
SOUTHWESTERN EST. LANDINGS & STD. ERROR	1,953,891 3.1	90,353 6.5	1,310,688 4.7	219,859 8.6	24,473 17.5
WESTERN-PACIFIC EST. LANDINGS & STD. ERROR	1,674,813 2.9	576,832 4.8	45,744 15.9	281,519 6.2	109,613 7.5
TOTAL EST. LANDINGS & STD. ERROR	7,356,984 1.3	1,475,685 1.9	1,640,059 3.5	1,717,085 4.1	361,722 3.9
					2,109,561 2.0

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

3.4 1989 TOTAL ROTORCRAFT LANDINGS BY LANDING FACILITY TYPE
BY STATE OF BASED ROTORCRAFT

PAGE 1 OF 6

STATE	TOTAL LANDINGS	LANDING FACILITY TYPE				OTHER
		AIRPORTS	HELIPORT	HELIPAD/ AIRPORTS	OFFSHORE PLATFORM	
ALABAMA EST. LANDINGS % STD. ERROR	58,942 12.2	6,494 16.4	0 0.0	16,214 29.9	1,490 76.9	29,685 19.5
ALASKA EST. LANDINGS % STD. ERROR	248,360 6.7	52,035 10.8	28,332 42.2	29,152 336.2	2,495 83.2	115,893 9.1
ARIZONA EST. LANDINGS % STD. ERROR	113,332 8.4	26,174 8.9	28,332 0.0	21,542 20.5	17,738 21.1	44,291 14.0
ARKANSAS EST. LANDINGS % STD. ERROR	52,902 16.1	7,307 22.0	28,332 0.0	1,826 58.9	298 106.0	31,928 24.5
CALIFORNIA EST. LANDINGS % STD. ERROR	1,389,904 3.4	506,471 5.4	32,338 20.5	204,110 9.2	58,357 9.2	512,650 5.2
COLORADO EST. LANDINGS % STD. ERROR	65,048 11.9	13,948 17.8	32,338 0.0	3,626 61.5	7,713 43.2	34,492 13.6
CONNECTICUT EST. LANDINGS % STD. ERROR	83,388 11.3	45,907 13.5	32,338 0.0	25,207 17.0	7,713 0.0	108 226.5
DELAWARE EST. LANDINGS % STD. ERROR	16,743 21.0	7,460 28.4	32,338 0.0	2,790 88.0	820 49.1	3,397 43.5
DIST. OF COLUMBIA EST. LANDINGS % STD. ERROR	13,467 24.0	676 43.4	32,338 0.0	9,724 67.1	2,413 20.5	3,397 0.0

3.4 1989 TOTAL ROTORCRAFT LANDINGS BY LANDING FACILITY TYPE
BY STATE OF BASED ROTORCRAFT

PAGE 2 OF 6

STATE	TOTAL LANDINGS	LANDING FACILITY TYPE				OTHER
		AIRPORTS	HELIPORT	HELIPAD/ AIRPORTS	OFFSHORE PLATFORM	
FLORIDA EST. LANDINGS & STD. ERROR	439,532 7.5	123,049 7.8	2,047 316.9	64,895 10.2	23,122 13.5	177,714 14.1
GEORGIA EST. LANDINGS & STD. ERROR	71,408 8.5	19,361 13.2	2,228 51.5	22,506 11.7	7,578 17.3	14,770 20.0
HAWAII EST. LANDINGS & STD. ERROR	125,966 7.9	46,178 13.0	1,131 153.5	36,366 22.7	23,740 14.1	4,325 45.5
IDAH0 EST. LANDINGS & STD. ERROR	68,765 13.7	3,238 27.3	1,131 0.0	12,123 17.1	4,112 30.1	37,702 19.3
ILLINOIS EST. LANDINGS & STD. ERROR	72,784 10.9	15,035 17.4	1,559 83.7	27,889 20.0	3,508 25.0	20,799 9.1
INDIANA EST. LANDINGS & STD. ERROR	57,046 8.6	12,773 12.1	1,559 0.0	10,335 26.6	3,508 0.0	27,402 11.2
IOWA EST. LANDINGS & STD. ERROR	31,237 21.6	2,517 19.0	1,559 0.0	24,630 24.9	3,508 0.0	3,565 44.5
KANSAS EST. LANDINGS & STD. ERROR	19,351 14.0	2,762 23.6	1,559 0.0	4,418 31.7	2,149 44.0	8,857 18.7
KENTUCKY EST. LANDINGS & STD. ERROR	40,443 10.9	10,133 15.1	1,096 37.4	2,375 37.6	3,751 30.1	18,358 17.2

3.4 1989 TOTAL ROTORCRAFT LANDINGS BY LANDING FACILITY TYPE
BY STATE OF BASED ROTORCRAFT

PAGE 3 OF 6

STATE	TOTAL LANDINGS	LANDING FACILITY TYPE				OTHER
		AIRPORTS	HELIPORT	HELIPAD/ AIRPORTS	OFFSHORE PLATFORM	
LOUISIANA EST. LANDINGS % STD. ERROR	1,267,777 4.8	3,140 16.7	1,120,143 5.4	55,211 20.6	5,565 36.4	22,890 16.5
MAINE EST. LANDINGS % STD. ERROR	7,847 20.4	5,102 19.8	1,120,143 0.0	55,211 0.0	5,565 0.0	3,003 22.5
MARYLAND EST. LANDINGS % STD. ERROR	34,753 9.5	11,213 16.3	1,120,143 0.0	328 64.4	5,428 21.4	8,056 14.0
MASSACHUSETTS EST. LANDINGS % STD. ERROR	86,794 9.6	26,004 11.2	1,120,143 0.0	42,835 19.5	1,472 37.2	10,096 22.4
MICHIGAN EST. LANDINGS % STD. ERROR	112,111 13.6	36,755 10.1	1,120,143 0.0	13,920 15.8	5,490 22.3	56,024 18.5
MINNESOTA EST. LANDINGS % STD. ERROR	49,050 11.3	12,918 19.0	1,120,143 0.0	5,649 68.0	5,490 0.0	21,139 17.4
MISSISSIPPI EST. LANDINGS % STD. ERROR	31,382 18.9	2,468 19.6	1,120,143 0.0	8,516 28.9	1,730 38.0	11,366 22.0
MISSOURI EST. LANDINGS % STD. ERROR	69,432 11.3	11,702 16.3	1,120,143 0.0	40,796 22.9	3,388 43.7	6,698 23.5
MONTANA EST. LANDINGS % STD. ERROR	33,407 16.1	919 34.4	1,120,143 0.0	40,796 0.0	441 54.1	24,706 17.3

3.4 1989 TOTAL ROTORCRAFT LANDINGS BY LANDING FACILITY TYPE
BY STATE OF BASED ROTORCRAFT

PAGE 4 OF 6

STATE	TOTAL LANDINGS	LANDING FACILITY TYPE				OTHER
		AIRPORTS	HELIPORT	HELIPAD/ AIRPORTS	OFFSHORE PLATFORM	
NEBRASKA						
EST. LANDINGS	2,308	1,088	1,120,143	40,796	441	398
% STD. ERROR	33.4	38.3	0.0	0.0	0.0	172.3
NEVADA						
EST. LANDINGS	44,607	2,123	1,120,143	17,454	8,031	8,301
% STD. ERROR	12.9	16.9	0.0	40.4	40.3	18.6
NEW HAMPSHIRE						
EST. LANDINGS	25,031	9,173	1,120,143	7,578	2,525	3,536
% STD. ERROR	10.9	16.7	0.0	20.1	36.8	19.7
NEW JERSEY						
EST. LANDINGS	188,842	50,079	971	62,567	46,512	10,149
% STD. ERROR	7.4	15.6	32.3	9.0	12.2	47.5
NEW MEXICO						
EST. LANDINGS	12,464	409	971	6,203	1,009	2,743
% STD. ERROR	30.0	66.5	0.0	21.4	57.7	36.7
NEW YORK						
EST. LANDINGS	177,791	26,330	971	88,690	24,909	24,455
% STD. ERROR	7.0	10.0	0.0	13.8	17.4	11.7
NORTH CAROLINA						
EST. LANDINGS	36,121	7,234	971	7,464	24,909	29,387
% STD. ERROR	11.6	15.9	0.0	22.5	52.8	10.2
NORTH DAKOTA						
EST. LANDINGS	26,892	3,723	971	8,355	24,909	11,482
% STD. ERROR	21.8	50.4	0.0	127.8	0.0	55.9
OHIO						
EST. LANDINGS	148,248	23,193	4,648	83,501	802	22,028
% STD. ERROR	8.6	16.6	26.8	18.1	62.7	11.2

3.4 1989 TOTAL ROTORCRAFT LANDINGS BY LANDING FACILITY TYPE
BY STATE OF BASED ROTORCRAFT

PAGE 5 OF 6

STATE	TOTAL LANDINGS	LANDING FACILITY TYPE			OFFSHORE PLATFORM	OTHER
		AIRPORTS	HELIPORT	HELIPAD/ AIRPORTS		
OKLAHOMA EST. LANDINGS & STD. ERROR	70,067 11.8	9,608 18.5	4,648 0.0	6,151 23.3	6,171 30.0	44,690 14.3
OREGON EST. LANDINGS & STD. ERROR	254,448 6.5	46,847 26.2	124 184.3	8,217 41.0	5,083 45.3	147,485 7.0
PENNSYLVANIA EST. LANDINGS & STD. ERROR	218,932 8.2	33,317 11.5	836 178.5	108,059 21.8	27,775 40.9	36,440 13.9
RHODE ISLAND EST. LANDINGS & STD. ERROR	5,490 22.6	3,611 26.6	836 0.0	1,080 52.3	27,775 0.0	36,440 0.0
SOUTH CAROLINA EST. LANDINGS & STD. ERROR	64,675 14.8	1,103 32.3	836 0.0	13,801 37.3	3,682 61.1	37,043 17.5
SOUTH DAKOTA EST. LANDINGS & STD. ERROR	4,003 29.6	5 75.7	836 0.0	2,661 43.9	3,682 0.0	249 78.2
TENNESSEE EST. LANDINGS & STD. ERROR	66,117 12.7	6,700 13.9	922 27.1	41,442 39.7	3,682 0.0	4,229 31.1
TEXAS EST. LANDINGS & STD. ERROR	465,884 4.2	62,291 7.7	161,486 7.0	148,778 11.2	10,477 20.7	85,023 7.5
UTAH EST. LANDINGS & STD. ERROR	46,774 15.7	62,291 0.0	161,486 0.0	19,906 27.5	1,064 69.5	25,591 15.8

3.4 1989 TOTAL ROTORCRAFT LANDINGS BY LANDING FACILITY TYPE
BY STATE OF BASED ROTORCRAFT

PAGE 6 OF 6

STATE	TOTAL LANDINGS	LANDING FACILITY TYPE				OTHER
		AIRPORTS	HELIPORT	HELIPAD/ AIRPORTS	OFFSHORE PLATFORM	
VERMONT EST. LANDINGS & STD. ERROR	3,077 33.6	2,458 29.2	161,486 0.0	262 95.4	1,064 0.0	86 65.5
VIRGINIA EST. LANDINGS & STD. ERROR	284,971 10.8	20,272 16.1	161,486 0.0	151,929 26.0	728 36.1	4,769 20.9
WASHINGTON EST. LANDINGS & STD. ERROR	229,904 9.5	17,718 15.8	161,486 0.0	30,557 32.3	491 48.9	112,037 8.3
WEST VIRGINIA EST. LANDINGS & STD. ERROR	21,380 13.2	4,599 25.3	161,486 0.0	2,356 51.5	742 50.8	11,790 23.9
WISCONSIN EST. LANDINGS & STD. ERROR	35,812 21.6	7,433 58.3	161,486 0.0	1,237 69.2	2,678 159.5	12,547 43.1
WYOMING EST. LANDINGS & STD. ERROR	12,766 18.5	4,188 21.9	161,486 0.0	4,056 35.1	2,678 0.0	2,557 25.0
ZPUERTO RICO EST. LANDINGS & STD. ERROR	12,766 0.0	4,188 0.0	161,486 0.0	4,056 0.0	2,678 0.0	2,557 0.0
TOTAL EST. LANDINGS & STD. ERROR	7,356,984 1.3	1,475,685 1.9	1,640,059 3.5	1,717,085 4.1	361,722 3.9	2,109,561 2.0

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

3.5 1989 ROTORCRAFT AVERAGE NUMBER OF LANDINGS PER FLIGHT HOUR
BY ROTORCRAFT TYPE

PAGE 1 OF 1

ROTORCRAFT TYPE	TOTAL LANDINGS	TOTAL FLIGHT HOURS	AVG. NO. LANDINGS • PER HOUR	PERCENT STANDARD ERROR
MANUFACTURER BUILT:				
PISTON TOTAL:	2,540,599	728,125	3.49	3.20
TURBINE: SINGLE ENGINE	3,417,711	1,532,270	2.23	1.56
TURBINE: MULTI - ENGINE	1,297,740	546,471	2.37	3.54
TURBINE TOTAL:	4,715,450	2,078,741	2.27	1.49
MANUFACTURER BUILT TOTAL:	7,256,049	2,806,866	2.59	1.47
AMATEUR BUILT TOTAL:	100,935	21,830	4.62	8.39
TOTAL - ALL AIRCRAFT:	7,356,984	2,828,697	2.60	1.45

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

3.6 1989 ROTORCRAFT AVERAGE NUMBER OF LANDINGS PER FLIGHT HOUR
BY SDR ROTORCRAFT MANUFACTURER/MODEL GROUP

PAGE 1 OF 3

MANUFACTURER/ MODEL GROUP	TOTAL LANDINGS	TOTAL FLIGHT HOURS	AVG. NO. LANDINGS PER HOUR	PERCENT STANDARD ERROR
OTHER 1 (*)	63,380	9,901	6.40	67.00
OTHER 2 (*)	59,115	36,571	1.62	11.45
OTHER 3 (*)	131,582	69,599	1.89	3.71
OTHER 4 (*)	100,935	21,830	4.62	6.84
AERORSJ2	1,168	576	2.03	13.13
AEROSPAS355	114,070	58,868	1.94	5.77
AEROSPAS316	81,633	27,516	2.97	3.26
AGUSTA205	39,174	11,856	3.30	7.66
AGUSTA109	46,880	15,372	3.05	10.80
AIRSPC18	2,638	939	2.81	31.59
BELL 204	16,938	5,621	3.01	4.47
BELL 206	2,389,016	979,907	2.44	1.90
BELL 212	149,377	56,155	2.66	7.62
BELL 222	57,306	26,601	2.15	4.59
BELL 412	73,275	41,651	1.76	8.67
BELL 47	523,008	155,156	3.37	3.88
BOLKMS105	220,348	107,506	2.05	15.16
BOLKMS117	248,605	54,321	4.58	8.65
ENSTRMF28 (1)	77,301	38,289	2.02	10.37
ENSTRMF28 (2)	46,215	22,891	2.02	14.12

3.6 1989 ROTORCRAFT AVERAGE NUMBER OF LANDINGS PER FLIGHT HOUR
BY SDR ROTORCRAFT MANUFACTURER/MODEL GROUP

PAGE 2 OF 3

MANUFACTURER/ MODEL GROUP	TOTAL LANDINGS	TOTAL FLIGHT HOURS	AVG. NO. LANDINGS PER HOUR	PERCENT STANDARD ERROR
H23/HTE	1,384	2,302	0.60	12.15
H34/55	DIS	DIS	DIS	DIS
HILLERFH1100	4,383	3,871	1.13	10.53
HILLERUH12 (1)	374,222	74,173	5.05	5.85
HILLERUH12 (2)	20,224	4,008	5.05	23.91
HUGHES269	401,034	162,192	2.47	4.67
HUGHES369	403,117	245,743	1.64	3.79
HYNES B2	7,285	3,577	2.04	4.57
MACDOUG369	54,642	30,873	1.77	7.05
MILITARY204	36,129	17,028	2.12	8.45
MILITARY47 (1)	261,046	45,720	5.71	5.17
MILITARY47 (2)	3,791	664	5.71	40.04
MODFD47	58,779	11,898	4.94	12.16
ORLHELH19	71,066	7,014	10.13	42.19
ORLHELH58	110	220	0.50	0.00
ROBSINR22	608,745	176,948	3.44	5.13
SCHWZH269	48,492	27,400	1.77	7.78
SKRSKYS55	510	323	1.58	6.96
SKRSKYS58	8,053	4,073	1.98	9.01
SKRSKYS58T	35,458	12,170	2.91	20.22
SKRSKYS61	18,351	12,133	1.51	5.08

3.6 1989 ROTORCRAFT AVERAGE NUMBER OF LANDINGS PER FLIGHT HOUR
BY SDR ROTORCRAFT MANUFACTURER/MODEL GROUP

PAGE 3 OF 3

MANUFACTURER/ MODEL GROUP	TOTAL LANDINGS	TOTAL FLIGHT HOURS	AVG. NO. LANDINGS PER HOUR	PERCENT STANDARD ERROR
SKRSKYS76	237,946	104,265	2.28	4.88
SNIAS 350	223,108	127,895	1.74	3.32
SNIAS SA341	4,767	2,958	1.61	12.58
TH55	12,921	4,584	2.82	5.35
TOMCAT	17,468	4,830	3.62	8.48
TOTAL	7,356,984	2,828,696	2.60	1.45

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

(*) THE "OTHER" CATEGORIES REPRESENT:

- OTHER 1 - MANUFACTURER BUILT - PISTON
- OTHER 2 - MANUFACTURER BUILT - TURBINE-SINGLE ENGINE
- OTHER 3 - MANUFACTURER BUILT - TURBINE-MULTI ENGINE
- OTHER 4 - AMATEUR BUILT

"DIS" INDICATES AN ESTIMATE WAS DELETED TO AVOID ANY POSSIBLE DISCLOSURE OF INDIVIDUAL RESPONSES.

(1) INDICATES MANUFACTURER BUILT - PISTON

(2) INDICATES MANUFACTURER BUILT - TURBINE-SINGLE ENGINE

3.7 1989 ROTORCRAFT AVERAGE NUMBER OF LANDINGS PER FLIGHT HOUR
BY REGION OF BASED ROTORCRAFT

PAGE 1 OF 1

REGION	TOTAL LANDINGS	TOTAL FLIGHT HOURS	AVG. NO. LANDINGS PER HOUR	PERCENT STANDARD ERROR
ALASKAN	248,360	101,441	2.45	8.83
CENTRAL	127,037	62,804	2.02	10.71
EASTERN	951,290	281,562	3.38	5.41
GREAT LAKES	537,716	182,934	2.94	5.88
NEW ENGLAND	214,147	84,710	2.53	8.42
NORTHWEST MT.	729,578	271,558	2.69	5.73
SOUTHERN	829,721	342,154	2.42	5.56
SOUTHWESTERN	1,953,891	779,136	2.51	3.94
WESTERN-PACIFIC	1,674,813	664,113	2.52	3.80
TOTAL	7,356,984	2,810,971	2.62	1.45

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

3.8 1989 ROTORCRAFT AVERAGE NUMBER OF LANDINGS PER FLIGHT HOUR
BY STATE OF BASED ROTORCRAFT

PAGE 1 OF 3

STATE	TOTAL LANDINGS	TOTAL FLIGHT HOURS	AVG. NO. LANDINGS PER HOUR	PERCENT STANDARD ERROR
ALABAMA	58,942	22,813	2.58	18.16
ALASKA	248,360	101,441	2.45	8.83
ARIZONA	113,332	69,153	1.64	11.35
ARKANSAS	52,902	7,641	6.92	23.62
CALIFORNIA	1,389,904	449,346	3.09	4.54
COLORADO	65,048	32,864	1.98	16.30
CONNECTICUT	83,388	23,984	3.48	15.91
DELAWARE	16,743	9,434	1.77	29.24
DIST. OF COLUMBIA	13,467	5,229	2.58	33.91
FLORIDA	439,532	168,751	2.60	8.83
GEORGIA	71,408	54,500	1.31	11.88
HAWAII	125,966	103,653	1.22	9.99
IDAHO	68,765	22,833	3.01	16.89
ILLINOIS	72,784	27,473	2.65	14.46
INDIANA	57,046	29,352	1.94	12.80
IOWA	31,237	12,490	2.50	29.80
KANSAS	19,351	11,266	1.72	20.96
KENTUCKY	40,443	15,884	2.55	15.26
LOUISIANA	1,267,777	511,658	2.48	5.81
MAINE	7,847	4,623	1.70	29.56
MARYLAND	34,753	31,635	1.10	11.63

3.8 1989 ROTORCRAFT AVERAGE NUMBER OF LANDINGS PER FLIGHT HOUR
BY STATE OF BASED ROTORCRAFT

PAGE 2 OF 3

STATE	TOTAL LANDINGS	TOTAL FLIGHT HOURS	AVG. NO. LANDINGS PER HOUR	PERCENT STANDARD ERROR
MASSACHUSETTS	86,794	39,631	2.19	12.99
MICHIGAN	112,111	36,169	3.10	16.03
MINNESOTA	49,050	17,862	2.75	16.05
MISSISSIPPI	31,382	12,107	2.59	23.19
MISSOURI	69,432	38,258	1.81	14.61
MONTANA	33,407	18,796	1.78	22.53
NEBRASKA	2,308	790	2.92	47.77
NEVADA	44,607	41,962	1.06	19.88
NEW HAMPSHIRE	25,031	13,568	1.84	15.29
NEW JERSEY	188,842	59,221	3.19	10.22
NEW MEXICO	12,464	7,093	1.76	39.32
NEW YORK	177,791	67,922	2.62	9.72
NORTH CAROLINA	36,121	22,399	1.61	15.63
NORTH DAKOTA	26,892	8,013	3.36	30.05
OHIO	148,248	53,608	2.77	11.53
OKLAHOMA	70,067	21,549	3.25	16.98
OREGON	254,448	96,421	2.64	8.37
PENNSYLVANIA	218,932	70,913	3.09	10.80
RHODE ISLAND	5,490	2,041	2.69	28.10
SOUTH CAROLINA	64,675	21,525	3.00	21.45
SOUTH DAKOTA	4,003	1,838	2.18	42.15

3.8 1989 ROTORCRAFT AVERAGE NUMBER OF LANDINGS PER FLIGHT HOUR
BY STATE OF BASED ROTORCRAFT

PAGE 3 OF 3

STATE	TOTAL LANDINGS	TOTAL FLIGHT HOURS	AVG. NO. LANDINGS PER HOUR	PERCENT STANDARD ERROR
TENNESSEE	66,117	24,176	2.73	15.78
TEXAS	465,884	231,197	2.02	5.67
UTAH	46,774	22,335	2.09	21.05
VERMONT	3,077	862	3.57	40.74
VIRGINIA	284,971	24,649	11.56	16.16
WASHINGTON	229,904	71,586	3.21	12.37
WEST VIRGINIA	21,380	12,559	1.70	17.60
WISCONSIN	35,812	8,619	4.16	27.34
WYOMING	12,766	6,723	1.90	25.11
PUERTO RICO	0	0	0.00	0.00
TOTAL	7,356,984	2,810,972	2.62	1.45

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

3.9 1989 ROTORCRAFT TOTAL LANDINGS BY EXPANDED USE CATEGORY
BY ROTORCRAFT TYPE

PAGE 1 OF 2

PRIMARY USE

ROTORCRAFT TYPE	PER- SONAL	EMERGENCY MEDICAL SERVICE UNDER FAR 135	NOT UND FAR 135	AIR TAXI	COMPUTER CARRIER	CORP- ORATE	INSTRUC- TIONAL
MANUFACTURER BUILT:							
PISTON TOTAL:							
EST. LANDINGS	77,678	13,036	5,612	29,201	0	16,181	891,914
% STD. ERROR	8.2	22.8	36.7	16.9	0.0	22.4	5.4
TURBINE: SINGLE ENGINE							
EST. LANDINGS	30,709	106,871	115,099	1,278,304	28,111	649,769	143,741
% STD. ERROR	9.2	8.1	9.1	2.5	22.3	6.6	12.9
TURBINE: MULTI - ENGINE							
EST. LANDINGS	5,893	174,332	115,691	454,416	11,878	354,870	78,225
% STD. ERROR	36.5	13.2	13.0	6.4	20.6	6.8	30.3
TURBINE TOTAL:							
EST. LANDINGS	36,601	281,202	230,790	1,732,719	39,989	1,004,639	221,966
% STD. ERROR	8.7	7.9	7.8	2.5	17.1	4.9	12.1
MANUFACTURER BUILT TOTAL:							
EST. LANDINGS	114,279	294,238	236,402	1,761,921	39,989	1,020,820	1,113,880
% STD. ERROR	6.3	7.6	7.5	2.5	17.1	4.8	5.0
AMATEUR BUILT:							
EST. LANDINGS	35,727	4,642	0	0	0	0	6,446
% STD. ERROR	5.9	26.7	0.0	0.0	0.0	0.0	27.8
TOTAL							
EST. LANDINGS	150,007	298,880	236,402	1,761,921	39,989	1,020,820	1,120,327
% STD. ERROR	4.6	7.4	7.5	2.5	17.1	4.8	5.0

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.
ROW SUMMATIONS MAY DIFFER FROM PRINTED TOTALS BECAUSE SOME ACTIVE ROTORCRAFT DID NOT REPORT USE.

CONTINUED ON NEXT PAGE

3.9 1989 ROTORCRAFT TOTAL LANDINGS BY EXPANDED USE CATEGORY
BY ROTORCRAFT TYPE

PAGE 2 OF 2

PRIMARY USE (CONTINUED)

ROTORCRAFT TYPE	AERIAL APPL	AERIAL OBS	EXTRNL LOAD	OTHR WK USE	BUSI- NESS	OTHER	TOTAL
MANUFACTURER BUILT:							
PISTON TOTAL:							
EST. LANDINGS	1,134,870	433,207	41,159	18,057	30,806	8,108	2,525,425
% STD. ERROR	6.1	7.7	30.0	26.0	9.7	31.2	5.0
TURBINE: SINGLE ENGINE							
EST. LANDINGS	197,535	604,822	150,660	39,267	59,886	22,555	3,414,216
% STD. ERROR	10.3	3.4	9.6	14.5	7.5	16.6	1.6
TURBINE: MULTI - ENGINE							
EST. LANDINGS	4,336	18,253	36,950	2,381	12,821	9,340	1,292,008
% STD. ERROR	58.8	27.5	9.7	56.5	16.8	26.5	3.7
TURBINE TOTAL:							
EST. LANDINGS	201,871	623,075	187,610	41,649	72,707	31,894	4,706,224
% STD. ERROR	10.2	3.4	7.9	14.0	6.7	13.9	1.5
MANUFACTURER BUILT TOTAL:							
EST. LANDINGS	1,336,742	1,056,282	228,769	59,706	103,513	40,002	7,231,646
% STD. ERROR	5.2	3.6	9.1	12.8	5.5	14.2	2.0
AMATEUR BUILT:							
EST. LANDINGS	0	1,036	0	0	1,172	5,424	144,226
% STD. ERROR	0.0	49.5	0.0	0.0	58.3	23.2	27.2
TOTAL							
EST. LANDINGS	1,336,742	1,057,318	228,769	59,706	104,684	45,426	7,375,872
% STD. ERROR	5.2	3.6	9.1	12.8	5.5	12.3	2.1

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.
ROW SUMMATIONS MAY DIFFER FROM PRINTED TOTALS BECAUSE SOME ACTIVE ROTORCRAFT DID NOT REPORT USE.

3.10 1989 TOTAL ACTIVE ROTORCRAFT BY BASE FACILITY TYPE
BY Rotorcraft Type

PAGE 1 OF 1

ROTORCRAFT TYPE	TOTAL ACTIVE ROTORCRAFT	BASE FACILITY TYPE			IN- ACTIVE
		AIRPORTS	HELIPORTS	OTHER	
MANUFACTURER BUILT:					
PISTON TOTAL:					
EST. NO. ACTIVE	2,684	1,565	594	525	1,265
& STD. ERROR	1.2	1.8	4.0	4.4	
EST. % ACTIVE	68.0				
TURBINE: SINGLE ENGINE					
EST. NO. ACTIVE	3,248	1,687	1,324	237	347
& STD. ERROR	0.5	1.4	1.6	5.4	
EST. % ACTIVE	90.3				
TURBINE: MULTI - ENGINE					
EST. NO. ACTIVE	984	354	586	44	85
& STD. ERROR	0.7	4.3	2.8	18.4	
EST. % ACTIVE	92.0				
TURBINE TOTAL:					
EST. NO. ACTIVE	4,232	2,040	1,911	281	432
& STD. ERROR	0.4	1.4	1.4	5.4	
EST. % ACTIVE	90.7				
MANUFACTURER BUILT TOTAL:					
EST. NO. ACTIVE	6,916	3,605	2,505	806	1,697
& STD. ERROR	0.5	1.1	1.4	3.4	
EST. % ACTIVE	80.3				
AMATEUR BUILT:					
EST. NO. ACTIVE	572	254	20	298	1,218
& STD. ERROR	3.5	5.5	25.9	4.7	
EST. % ACTIVE	31.9				
TOTAL					
EST. NO. ACTIVE	7,488	3,859	2,525	1,104	2,915
& STD. ERROR	0.6	1.1	1.5	2.8	
EST. % ACTIVE	72.0				

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

3.11 1989 TOTAL ACTIVE ROTORCRAFT BY BASE FACILITY TYPE
BY SDR ROTORCRAFT MANUFACTURER/MODEL GROUP

PAGE 1 OF 6

MANUFACTURER/ MODEL GROUP	TOTAL ACTIVE ROTORCRAFT	BASE FACILITY TYPE			IN- ACTIVE
		AIRPORTS	HELIPORTS	OTHER	
OTHER 1 (*)	93	81	7	5	33
EST. NO. ACTIVE	0.0	13.9	123.6	151.7	
& STD. ERROR	73.8				
EST. % ACTIVE					
OTHER 2 (*)	91	56	24	11	22
EST. NO. ACTIVE	0.0	8.8	18.4	29.8	
& STD. ERROR	80.7				
EST. % ACTIVE					
OTHER 3 (*)	111	52	54	5	31
EST. NO. ACTIVE	0.0	9.7	9.4	42.9	
& STD. ERROR	78.4				
EST. % ACTIVE					
OTHER 4 (*)	572	254	20	298	1,218
EST. NO. ACTIVE	0.0	5.5	25.9	4.7	
& STD. ERROR	31.9				
EST. % ACTIVE					
AERORSJ2	20	11	0	9	18
EST. NO. ACTIVE	0.0	19.0	0.0	24.4	
& STD. ERROR	51.7				
EST. % ACTIVE					
AEROSPAS355	108	DIS	DIS	DIS	1
EST. NO. ACTIVE	0.0				
& STD. ERROR	99.0				
EST. % ACTIVE					
AEROSPSA316	61	18	44	0	30
EST. NO. ACTIVE	0.0	23.4	9.4	0.0	
& STD. ERROR	67.4				
EST. % ACTIVE					
AGUSTA205	30	DIS	DIS	DIS	2
EST. NO. ACTIVE	0.0				
& STD. ERROR	95.0				
EST. % ACTIVE					
AGUSTAA109	66	DIS	DIS	DIS	0
EST. NO. ACTIVE	0.0				
& STD. ERROR	100.0				
EST. % ACTIVE					

3.11 1989 TOTAL ACTIVE ROTORCRAFT BY BASE FACILITY TYPE
BY SDR ROTORCRAFT MANUFACTURER/MODEL GROUP

PAGE 2 OF 6

MANUFACTURER/ MODEL GROUP	TOTAL ACTIVE	BASE FACILITY TYPE			OTHER	IN- ACTIVE
		AIRPORTS	HELIPORTS			
AIRSPC18 EST. NO. ACTIVE & STD. ERROR EST. & ACTIVE	15 0.0 64.3	DIS	DIS	DIS	DIS	8
ARCNEH37 EST. NO. ACTIVE & STD. ERROR EST. & ACTIVE	0 0.0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0
BELL 204 EST. NO. ACTIVE & STD. ERROR EST. & ACTIVE	22 0.0 84.3	14 22.4	0 0.0	0 0.0	8 40.5	4
BELL 206 EST. NO. ACTIVE & STD. ERROR EST. & ACTIVE	1,810 0.0 95.3	832 1.6	872 1.6	105 6.1	90	
BELL 212 EST. NO. ACTIVE & STD. ERROR EST. & ACTIVE	106 0.0 90.2	DIS	DIS	DIS	DIS	11
BELL 222 EST. NO. ACTIVE & STD. ERROR EST. & ACTIVE	70 0.0 84.3	34 6.7	31 7.3	5 23.6	13	
BELL 412 EST. NO. ACTIVE & STD. ERROR EST. & ACTIVE	61 0.0 100.0	DIS	DIS	DIS	DIS	0
BELL 47 EST. NO. ACTIVE & STD. ERROR EST. & ACTIVE	579 0.0 69.1	297 4.9	181 7.4	101 10.8	259	
BOLKMS105 EST. NO. ACTIVE & STD. ERROR EST. & ACTIVE	171 0.0 97.7	29 31.9	133 7.7	8 63.2	4	

3.11 1989 TOTAL ACTIVE ROTORCRAFT BY BASE FACILITY TYPE
BY SDR ROTORCRAFT MANUFACTURER/MODEL GROUP

PAGE 3 OF 6

MANUFACTURER/ MODEL GROUP	TOTAL ACTIVE	BASE FACILITY TYPE			IN- ACTIVE
		AIRPORTS	HELIPORTS	OTHER	
BOLKMS117 EST. NO. ACTIVE & STD. ERROR EST. & ACTIVE	110 0.0 97.2	DIS	DIS	DIS	3
ENSTRMF28 (1) EST. NO. ACTIVE & STD. ERROR EST. & ACTIVE	219 0.0 73.2	137 5.4	48 13.1	34 16.4	80
ENSTRMF28 (2) EST. NO. ACTIVE & STD. ERROR EST. & ACTIVE	112 0.0 91.5	79 5.9	23 18.1	9 32.0	10
H23/HTE EST. NO. ACTIVE & STD. ERROR EST. & ACTIVE	12 0.0 32.1	0 0.0	0 0.0	12 0.0	24
H34/55 EST. NO. ACTIVE & STD. ERROR EST. & ACTIVE	DIS 11.4	DIS	DIS	DIS	DIS
HILLERFH1100 EST. NO. ACTIVE & STD. ERROR EST. & ACTIVE	29 0.0 45.2	DIS	DIS	DIS	35
HILLERUH12 (1) EST. NO. ACTIVE & STD. ERROR EST. & ACTIVE	351 0.0 63.0	188 6.1	68 13.3	95 10.7	207
HILLERUH12 (2) EST. NO. ACTIVE & STD. ERROR EST. & ACTIVE	22 0.0 80.2	7 21.7	5 28.8	9 17.8	5
HUGHES269 EST. NO. ACTIVE & STD. ERROR EST. & ACTIVE	476 0.0 70.4	243 4.1	142 6.4	91 8.6	200

3.11 1989 TOTAL ACTIVE ROTORCRAFT BY BASE FACILITY TYPE
BY SDR ROTORCRAFT MANUFACTURER/MODEL GROUP

PAGE 4 OF 6

MANUFACTURER/ MODEL GROUP	TOTAL ACTIVE	BASE FACILITY TYPE		OTHER	IN- ACTIVE
		AIRPORTS	HELIPORTS		
HUGHES369 EST. NO. ACTIVE & STD. ERROR EST. & ACTIVE	551 0.0 91.8	326 3.4	147 6.8	77 10.1	49
HYNES B2 EST. NO. ACTIVE & STD. ERROR EST. & ACTIVE	53 0.0 41.9	DIS	DIS	DIS	73
MACDOUG369 EST. NO. ACTIVE & STD. ERROR EST. & ACTIVE	61 0.0 100.0	DIS	DIS	DIS	0
MILITARY204 EST. NO. ACTIVE & STD. ERROR EST. & ACTIVE	142 0.0 70.8	121 6.7	16 45.2	5 80.0	59
MILITARY47 (1) EST. NO. ACTIVE & STD. ERROR EST. & ACTIVE	219 0.0 58.5	123 6.1	51 12.4	45 13.5	156
MILITARY47 (2) EST. NO. ACTIVE & STD. ERROR EST. & ACTIVE	15 0.0 76.9	0 0.0	15 0.0	0 0.0	5
MODEFD47 EST. NO. ACTIVE & STD. ERROR EST. & ACTIVE	37 0.0 70.4	17 25.6	8 42.8	12 32.4	16
ORLHELH19 EST. NO. ACTIVE & STD. ERROR EST. & ACTIVE	44 0.0 60.3	DIS	DIS	DIS	29
ORLHEL58 EST. NO. ACTIVE & STD. ERROR EST. & ACTIVE	11 0.0 33.3	11 0.0	0 0.0	0 0.0	22

3.11 1989 TOTAL ACTIVE ROTORCRAFT BY BASE FACILITY TYPE
BY SDR ROTORCRAFT MANUFACTURER/MODEL GROUP

PAGE 5 OF 6

MANUFACTURER/ MODEL GROUP	TOTAL ACTIVE	BASE FACILITY TYPE			IN- ACTIVE
		AIRPORTS	HELIPORTS	OTHER	
ROBSINR22 EST. NO. ACTIVE & STD. ERROR EST. & ACTIVE	395 0.0 96.9	311 2.0	44 11.0	41 11.5	13
SCHWZH269 EST. NO. ACTIVE & STD. ERROR EST. & ACTIVE	48 0.0 89.6	19 7.9	23 6.8	6 17.3	6
SKRSKYS55 EST. NO. ACTIVE & STD. ERROR EST. & ACTIVE	7 0.0 20.0	DIS	DIS	DIS	27
SKRSKYS58 EST. NO. ACTIVE & STD. ERROR EST. & ACTIVE	35 0.0 48.6	DIS	DIS	DIS	37
SKRSKYS58T EST. NO. ACTIVE & STD. ERROR EST. & ACTIVE	27 0.0 71.4	16 18.6	12 25.0	0 0.0	11
SKRSKYS61 EST. NO. ACTIVE & STD. ERROR EST. & ACTIVE	14 0.0 49.6	DIS	DIS	DIS	14
SKRSKYS76 EST. NO. ACTIVE & STD. ERROR EST. & ACTIVE	167 0.0 95.6	DIS	DIS	DIS	8
SNIAS 350 EST. NO. ACTIVE & STD. ERROR EST. & ACTIVE	255 0.0 94.0	132 4.9	117 5.5	6 33.3	16
SNIAS SA318 EST. NO. ACTIVE & STD. ERROR EST. & ACTIVE	0 0.0 0.0	0 0.0	0 0.0	0 0.0	0

3.11 1989 TOTAL ACTIVE ROTORCRAFT BY BASE FACILITY TYPE
BY SDR ROTORCRAFT MANUFACTURER/MODEL GROUP

PAGE 6 OF 6

MANUFACTURER/ MODEL GROUP	TOTAL ACTIVE	BASE FACILITY TYPE			IN- ACTIVE
		AIRPORTS	HELIPORTS	OTHER	
SNIAS SA341					
EST. NO. ACTIVE	20	DIS	DIS	DIS	9
& STD. ERROR	0.0				
EST. % ACTIVE	68.7				
TH55					
EST. NO. ACTIVE	42	DIS	DIS	DIS	18
& STD. ERROR	0.0				
EST. % ACTIVE	70.1				
TOMCAT					
EST. NO. ACTIVE	24	DIS	DIS	DIS	14
& STD. ERROR	0.0				
EST. % ACTIVE	63.8				
TOTAL	7,488	3,859	2,525	1,104	2,915
EST. NO. ACTIVE	0.6	1.1	1.5	2.8	
& STD. ERROR	72.0				
EST. % ACTIVE					

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

(*) THE "OTHER" CATEGORIES REPRESENT:

- OTHER 1 - MANUFACTURER BUILT - PISTON
- OTHER 2 - MANUFACTURER BUILT - TURBINE-SINGLE ENGINE
- OTHER 3 - MANUFACTURER BUILT - TURBINE-MULTI ENGINE
- OTHER 4 - AMATEUR BUILT

"DIS" INDICATES AN ESTIMATE WAS DELETED TO AVOID ANY POSSIBLE DISCLOSURE OF INDIVIDUAL RESPONSES.

(1) INDICATES MANUFACTURER BUILT - PISTON

(2) INDICATES MANUFACTURER BUILT - TURBINE-SINGLE ENGINE

3.12 1989 TOTAL ACTIVE ROTORCRAFT BY BASE FACILITY TYPE
BY REGION OF BASED ROTORCRAFT

PAGE 1 OF 2

REGION	TOTAL ACTIVE ROTORCRAFT	BASE FACILITY TYPE			IN- ACTIVE
		AIRPORTS	HELIPORTS	OTHER	
ALASKAN EST. NO. ACTIVE & STD. ERROR EST. & ACTIVE	248 5.3 86.1	126 8.4	48 14.2	26 20.2	40
CENTRAL EST. NO. ACTIVE & STD. ERROR EST. & ACTIVE	216 6.4 64.3	100 10.1	85 13.3	41 17.1	120
EASTERN EST. NO. ACTIVE & STD. ERROR EST. & ACTIVE	1,004 2.8 75.5	575 3.9	345 6.5	117 9.7	325
GREAT LAKES EST. NO. ACTIVE & STD. ERROR EST. & ACTIVE	752 3.4 62.2	399 5.7	231 7.3	129 9.7	456
NEW ENGLAND EST. NO. ACTIVE & STD. ERROR EST. & ACTIVE	292 4.8 77.5	205 6.5	63 12.0	32 18.7	85
NORTHWEST MT. EST. NO. ACTIVE & STD. ERROR EST. & ACTIVE	882 3.1 69.9	441 5.4	192 7.1	163 9.4	380
SOUTHERN EST. NO. ACTIVE & STD. ERROR EST. & ACTIVE	1,223 2.6 69.6	728 4.2	296 5.6	235 7.4	535
SOUTHWESTERN EST. NO. ACTIVE & STD. ERROR EST. & ACTIVE	1,413 2.1 75.7	402 5.9	936 2.5	146 9.0	454

3.12 1989 TOTAL ACTIVE ROTORCRAFT BY BASE FACILITY TYPE
BY REGION OF BASED ROTORCRAFT

REGION	TOTAL ACTIVE ROTORCRAFT	BASE FACILITY TYPE			IN- ACTIVE
		AIRPORTS	HELIPORTS	OTHER	
WESTERN-PACIFIC EST. NO. ACTIVE & STD. ERROR EST. & ACTIVE	1,458 2.1 73.7	919 2.9	329 5.2	178 8.0	521
TOTAL EST. NO. ACTIVE & STD. ERROR EST. & ACTIVE	7,488 0.6 72.0	3,859 1.1	2,525 1.5	1,104 2.8	2,915

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

3.13 1989 TOTAL ACTIVE ROTORCRAFT BY BASE FACILITY TYPE
BY
STATE OF BASED ROTORCRAFT

PAGE 1 OF 6

STATE	TOTAL ACTIVE	BASE FACILITY TYPE			IN- ACTIVE
		AIRPORTS	HELIPORTS	OTHER	
ALABAMA EST. NO. ACTIVE & STD. ERROR EST. & ACTIVE	96 10.6 58.0	66 14.8	24 20.2	8 41.7	69
ALASKA EST. NO. ACTIVE & STD. ERROR EST. & ACTIVE	248 5.3 86.1	126 8.4	48 14.2	26 20.2	40
ARIZONA EST. NO. ACTIVE & STD. ERROR EST. & ACTIVE	176 7.6 59.3	110 8.7	29 17.9	37 18.0	120
ARKANSAS EST. NO. ACTIVE & STD. ERROR EST. & ACTIVE	37 14.9 57.5	25 21.2	5 37.2	12 32.4	28
CALIFORNIA EST. NO. ACTIVE & STD. ERROR EST. & ACTIVE	1,072 2.5 75.3	688 3.4	251 6.0	129 9.5	352
COLORADO EST. NO. ACTIVE & STD. ERROR EST. & ACTIVE	101 10.2 68.4	70 15.8	25 19.8	12 24.8	47
CONNECTICUT EST. NO. ACTIVE & STD. ERROR EST. & ACTIVE	66 10.3 85.0	DIS	DIS	DIS	12
DELAWARE EST. NO. ACTIVE & STD. ERROR EST. & ACTIVE	33 17.8 85.8	DIS	DIS	DIS	6
DIST. OF COLUMBIA EST. NO. ACTIVE & STD. ERROR EST. & ACTIVE	32 22.9 100.0	34 25.7	6 65.2	0 0.0	0

3.13 1989 TOTAL ACTIVE ROTORCRAFT BY BASE FACILITY TYPE
BY
STATE OF BASED ROTORCRAFT

PAGE 2 OF 6

STATE	TOTAL ACTIVE	BASE FACILITY TYPE			IN- ACTIVE
		AIRPORTS	HELIPORTS	OTHER	
FLORIDA					
EST. NO. ACTIVE	635	414	90	123	239
& STD. ERROR	4.3	6.4	11.6	9.9	
EST. & ACTIVE	72.6				
GEORGIA					
EST. NO. ACTIVE	127	69	47	18	65
& STD. ERROR	7.3	9.7	11.0	26.3	
EST. & ACTIVE	66.2				
HAWAII					
EST. NO. ACTIVE	126	70	17	5	24
& STD. ERROR	6.5	9.4	19.7	53.9	
EST. & ACTIVE	83.7				
IDAHO					
EST. NO. ACTIVE	86	47	23	19	22
& STD. ERROR	9.3	14.4	18.3	26.5	
EST. & ACTIVE	80.0				
ILLINOIS					
EST. NO. ACTIVE	137	71	49	20	95
& STD. ERROR	10.4	20.8	16.3	24.0	
EST. & ACTIVE	58.9				
INDIANA					
EST. NO. ACTIVE	124	69	30	31	58
& STD. ERROR	7.9	11.7	18.5	21.2	
EST. & ACTIVE	68.3				
IOWA					
EST. NO. ACTIVE	46	10	29	8	46
& STD. ERROR	16.7	30.8	27.4	44.3	
EST. & ACTIVE	50.2				
KANSAS					
EST. NO. ACTIVE	45	28	15	8	28
& STD. ERROR	13.5	18.3	32.6	41.1	
EST. & ACTIVE	61.2				
KENTUCKY					
EST. NO. ACTIVE	68	56	11	12	18
& STD. ERROR	8.8	11.0	23.9	26.5	
EST. & ACTIVE	79.4				

3.13 1989 TOTAL ACTIVE ROTORCRAFT BY BASE FACILITY TYPE
BY
STATE OF BASED ROTORCRAFT

PAGE 3 OF 6

STATE	TOTAL ACTIVE	AIRPORTS	BASE FACILITY TYPE HELIPORTS	OTHER	IN- ACTIVE
LOUISIANA					
EST. NO. ACTIVE	645	54	647	18	59
& STD. ERROR	3.0	18.7	3.1	29.3	
EST. % ACTIVE	91.6				
MAINE					
EST. NO. ACTIVE	27	22	0	5	15
& STD. ERROR	20.1	28.3	0.0	52.2	
EST. % ACTIVE	63.9				
MARYLAND					
EST. NO. ACTIVE	101	56	7	22	10
& STD. ERROR	7.6	10.6	35.3	22.1	
EST. % ACTIVE	90.7				
MASSACHUSETTS					
EST. NO. ACTIVE	107	96	17	7	38
& STD. ERROR	8.1	9.4	26.4	35.1	
EST. % ACTIVE	73.6				
MICHIGAN					
EST. NO. ACTIVE	151	101	34	31	64
& STD. ERROR	7.2	10.2	16.0	21.2	
EST. % ACTIVE	70.1				
MINNESOTA					
EST. NO. ACTIVE	73	34	15	6	68
& STD. ERROR	10.6	14.4	31.7	41.4	
EST. % ACTIVE	52.0				
MISSISSIPPI					
EST. NO. ACTIVE	51	46	6	10	11
& STD. ERROR	12.8	15.9	49.8	25.7	
EST. % ACTIVE	82.7				
MISSOURI					
EST. NO. ACTIVE	114	48	41	25	37
& STD. ERROR	8.5	14.5	15.5	20.6	
EST. % ACTIVE	75.3				
MONTANA					
EST. NO. ACTIVE	69	43	5	9	28
& STD. ERROR	15.8	21.2	48.0	96.9	
EST. % ACTIVE	70.8				

3.13 1989 TOTAL ACTIVE ROTORCRAFT BY BASE FACILITY TYPE
By
STATE OF BASED ROTORCRAFT

PAGE 4 OF 6

STATE	TOTAL ACTIVE	BASE FACILITY TYPE			IN- ACTIVE
		AIRPORTS	HELIPORTS	OTHER	
NEBRASKA					
EST. NO. ACTIVE	11	13	0	0	8
% STD. ERROR	29.9	31.5	0.0	0.0	
EST. % ACTIVE	57.2				
NEVADA					
EST. NO. ACTIVE	85	51	33	7	24
% STD. ERROR	10.9	16.6	18.6	44.3	
EST. % ACTIVE	78.1				
NEW HAMPSHIRE					
EST. NO. ACTIVE	67	23	27	11	10
% STD. ERROR	9.4	18.8	15.3	27.5	
EST. % ACTIVE	87.4				
NEW JERSEY					
EST. NO. ACTIVE	202	151	57	7	37
% STD. ERROR	6.5	6.8	19.4	44.8	
EST. % ACTIVE	84.7				
NEW MEXICO					
EST. NO. ACTIVE	40	23	8	7	24
% STD. ERROR	25.1	45.2	29.7	44.0	
EST. % ACTIVE	62.3				
NEW YORK					
EST. NO. ACTIVE	239	118	68	44	94
% STD. ERROR	5.7	10.2	11.6	15.8	
EST. % ACTIVE	71.8				
NORTH CAROLINA					
EST. NO. ACTIVE	88	42	23	23	47
% STD. ERROR	9.5	17.6	16.7	21.5	
EST. % ACTIVE	65.2				
NORTH DAKOTA					
EST. NO. ACTIVE	23	DIS	DIS	DIS	5
% STD. ERROR	19.4				
EST. % ACTIVE	81.5				
OHIO					
EST. NO. ACTIVE	190	65	87	34	106
% STD. ERROR	7.1	11.7	13.1	19.0	
EST. % ACTIVE	64.1				

3.13 1989 TOTAL ACTIVE ROTORCRAFT BY BASE FACILITY TYPE
BY
STATE OF BASED ROTORCRAFT

PAGE 5 OF 6

STATE	TOTAL ACTIVE	AIRPORTS	BASE FACILITY TYPE HELIPORTS	OTHER	IN- ACTIVE
OKLAHOMA EST. NO. ACTIVE & STD. ERROR EST. & ACTIVE	92 11.9 57.2	60 19.3	21 24.5	16 29.4	69
OREGON EST. NO. ACTIVE & STD. ERROR EST. & ACTIVE	282 5.4 69.2	121 9.4	63 14.3	41 17.0	126
PENNSYLVANIA EST. NO. ACTIVE & STD. ERROR EST. & ACTIVE	258 6.2 63.3	86 10.4	160 9.0	25 23.1	149
RHODE ISLAND EST. NO. ACTIVE & STD. ERROR EST. & ACTIVE	10 21.4 67.5	DIS	DIS	DIS	5
SOUTH CAROLINA EST. NO. ACTIVE & STD. ERROR EST. & ACTIVE	67 13.3 57.5	12 33.1	26 21.0	30 28.0	50
SOUTH DAKOTA EST. NO. ACTIVE & STD. ERROR EST. & ACTIVE	9 29.5 75.0	DIS	DIS	DIS	3
TENNESSEE EST. NO. ACTIVE & STD. ERROR EST. & ACTIVE	92 8.5 71.6	23 17.4	71 11.2	10 31.1	37
TEXAS EST. NO. ACTIVE & STD. ERROR EST. & ACTIVE	599 3.4 68.6	240 6.3	255 5.9	93 10.8	274
UTAH EST. NO. ACTIVE & STD. ERROR EST. & ACTIVE	70 10.4 66.4	11 33.2	20 20.4	10 30.1	35

3.13 1989 TOTAL ACTIVE ROTORCRAFT BY BASE FACILITY TYPE
BY
STATE OF BASED ROTORCRAFT

PAGE 6 OF 6

STATE	TOTAL ACTIVE	BASE FACILITY TYPE			IN- ACTIVE
		AIRPORTS	HELIPORTS	OTHER	
VERMONT					
EST. NO. ACTIVE	15	DIS	DIS	DIS	5
& STD. ERROR	23.9				
EST. % ACTIVE	75.7				
VIRGINIA					
EST. NO. ACTIVE	97	76	28	10	26
& STD. ERROR	11.2	12.2	34.6	33.7	
EST. % ACTIVE	79.0				
WASHINGTON					
EST. NO. ACTIVE	233	127	54	63	116
& STD. ERROR	6.6	11.1	14.1	13.1	
EST. % ACTIVE	66.8				
WEST VIRGINIA					
EST. NO. ACTIVE	41	28	11	7	3
& STD. ERROR	11.6	15.6	27.7	31.5	
EST. % ACTIVE	92.6				
WISCONSIN					
EST. NO. ACTIVE	45	24	8	6	57
& STD. ERROR	15.6	22.4	38.5	43.6	
EST. % ACTIVE	44.0				
WYOMING					
EST. NO. ACTIVE	40	DIS	DIS	DIS	6
& STD. ERROR	14.0				
EST. % ACTIVE	87.9				
PUERTO RICO					
EST. NO. ACTIVE	0	0	0	0	0
& STD. ERROR	0.0	0.0	0.0	0.0	
EST. % ACTIVE	0.0				
TOTAL					
EST. NO. ACTIVE	7,488	3,859	2,525	1,104	2,915
& STD. ERROR	0.6	1.1	1.5	2.8	
EST. % ACTIVE	72.0				

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

"Dis" INDICATES AN ESTIMATE WAS DELETED TO AVOID ANY POSSIBLE DISCLOSURE OF INDIVIDUAL RESPONSES.

CHAPTER IV

PRIMARY USE BY EXPANDED USE CATEGORY

The rotorcraft fleet is used to provide an array of services, such as air taxi, external load, personal, business, instructional, and emergency medical service. This chapter considers the major uses of the rotorcraft fleet. Twelve expanded use categories for rotorcraft are defined in Appendix C.

This chapter consists of eight tables and one figure. The odd numbered Tables, 4.1-4.7, present the estimated number of active and inactive rotorcraft, by expanded use category, in four different ways, by: 1) aircraft type; 2) SDR Rotorcraft Manufacturer/Model Group; 3) region of based rotorcraft; and 4) state of based rotorcraft. The even numbered Tables, 4.2-4.8, present the estimated total hours, by expanded use category, in the same four ways listed above.

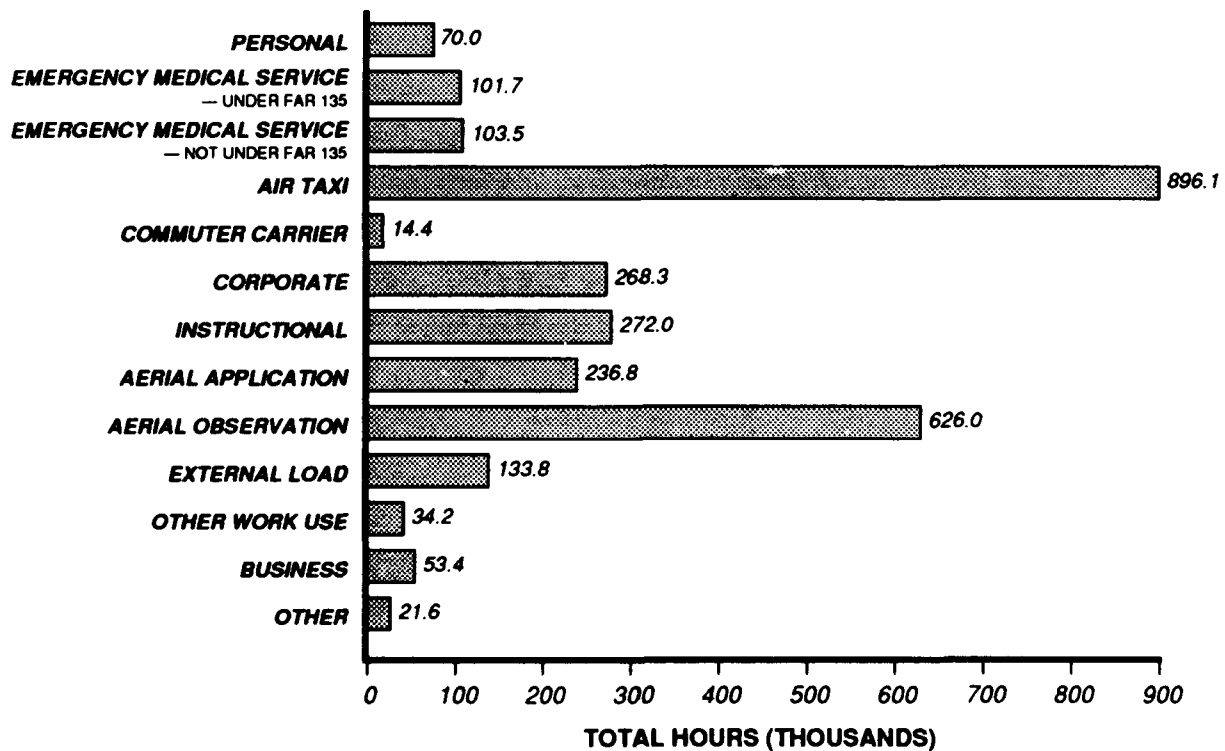
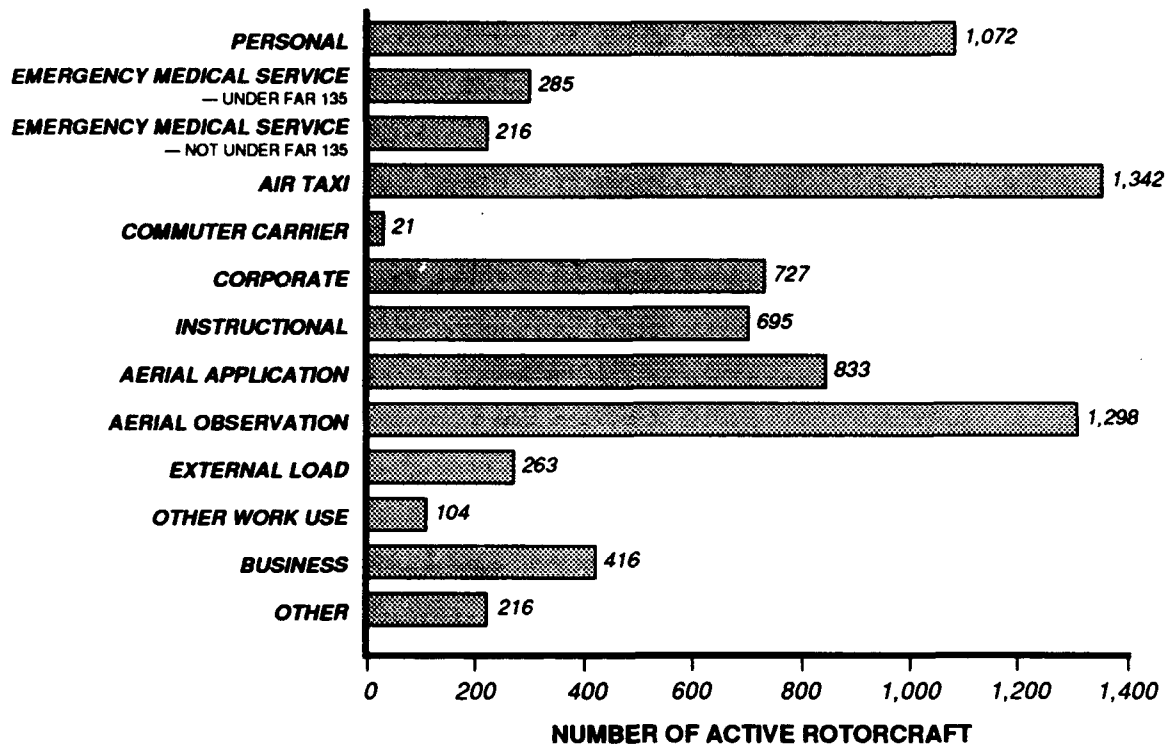
Figure 4.1 displays two graphs. The first one shows the number of rotorcraft in each primary use category. The second graph depicts the total flight hours by rotorcraft in each expanded use category.

Some key observations to be drawn from Tables 4.1-4.8 and the figure in this chapter are:

- o Approximately 72 percent of the registered rotorcraft fleet were active in 1989.
- o Air taxi is the most popular primary use of the active rotorcraft fleet. Almost 18 percent are primarily used in this way. The second and third most popular primary uses are aerial observation and personal - 17 percent and 14 percent, respectively.
- o About 28 percent of the active single engine turbine rotorcraft and almost 38 percent of the active multiengine turbine rotorcraft are used primarily for air taxi purposes. Together, 32 percent of the turbine rotorcraft are used for air taxi.
- o As one might expect, personal use is the most popular primary use of amateur built rotorcraft. More than 68 percent of the amateur rotorcraft were used primarily for this purpose.
- c Aerial observation is the most popular primary use in five out of nine regions: the Southern region, 39 percent; the Central region, 34 percent; the Great Lakes region, 33 percent; the Western-Pacific region, 33 percent; and the Eastern region, 24 percent.
- o The rotorcraft fleet flew over 896 thousand air taxi hours in 1989. The next closest use category, aerial observation, totaled more than 626 thousand hours.
- o Instructional use is the largest use of piston rotorcraft. Almost 31 percent (224,075 hours) of the total hours flown by piston rotorcraft were used primarily for this purpose.

- o The largest use of both the single and multiengine turbine rotorcraft was air taxi, with 40 percent and 49 percent of the total hours flown, respectively, comprising this use category.
- o In both the Alaskan and Southwestern regions, the largest use is air taxi, accounting for 79 percent and 72 percent, respectively, of the total hours flown in those regions. Even though the Southwest region has only 9 percent of the active fleet, rotorcraft in this region accounted for over 60 percent of the air taxi hours flown.
- o The largest use of rotorcraft in the Northwest Mountain region is external load, with 26 percent of its total hours flown in this category. In the New England region, the largest use of rotorcraft is split between corporate and instructional use categories, with 28 percent of the region's total hours flown in each category.

Figure 4.1
1989 NUMBER OF ROTORCRAFT
AND TOTAL FLIGHT HOURS
BY EXPANDED USE CATEGORY



SOURCE: Tables 4.1 and 4.2

4.1 1989 TOTAL ACTIVE ROTORCRAFT BY EXPANDED USE CATEGORY
BY ROTORCRAFT TYPE

PAGE 1 OF 1

ACTIVE USE

ROTORCRAFT TYPE	TOTAL ACTIVE	PER- SONAL	EMERG MED SVCE UNDER NOT UND FAR135 FAR135	AIR TAXI	COMMUTR CORP- CARRIER ORATE	INSTRUC TIONAL	AERIAL APPL	AERIAL OBS	EXTNL LOAD	OTHR WK USE	BUSSI- NESS	OTHER	IN- ACTIVE
MANUFACTURER BUILT:													
PISTON TOTAL:													
EST. NO. ACTIVE	2,684	462	37	12	50	0	44	530	610	553	87	46	189
% STD. ERROR	1.2	5.2	15.6	29.1	14.4	0.0	13.6	3.3	4.1	3.3	18.6	14.2	6.3
EST. % ACTIVE	68.0												23.6
TURBINE: SINGLE ENGINE													
EST. NO. ACTIVE	3,248	140	103	109	917	16	459	110	211	708	139	56	200
% STD. ERROR	0.5	6.8	7.1	8.2	1.8	15.1	3.2	8.9	6.2	2.5	7.3	10.3	5.4
EST. % ACTIVE	90.3												80
TURBINE: MULTI - ENGINE													
EST. NO. ACTIVE	984	13	111	95	375	5	224	34	12	28	35	2	23
% STD. ERROR	0.7	33.2	12.0	12.4	4.3	19.0	5.2	25.0	29.8	26.6	11.4	56.5	16.5
EST. % ACTIVE	92.0												18.4
TURBINE TOTAL:													
EST. NO. ACTIVE	4,232	153	215	204	1,292	21	683	144	223	736	174	58	223
% STD. ERROR	0.4	6.8	7.1	7.3	1.8	12.3	2.7	9.0	6.1	2.6	6.3	10.1	5.2
EST. % ACTIVE	90.7												10.4
MANUFACTURER BUILT TOTAL:													
EST. NO. ACTIVE	6,916	615	251	216	1,342	21	727	673	833	1,289	261	104	412
% STD. ERROR	0.5	4.2	6.5	7.1	1.8	12.3	2.7	3.3	3.4	2.0	7.5	8.4	4.0
EST. % ACTIVE	80.3												4.0
AMATEUR BUILT:													
EST. NO. ACTIVE	572	456	34	0	0	0	0	22	0	9	3	0	4
% STD. ERROR	3.5	2.3	18.3	0.0	0.0	0.0	0.0	23.2	0.0	36.8	68.0	0.0	58.3
EST. % ACTIVE	31.9												15.8
TOTAL													
EST. NO. ACTIVE	7,488	1,072	285	216	1,342	21	727	695	833	1,298	263	104	416
% STD. ERROR	0.6	2.6	6.1	7.1	1.8	12.3	2.7	3.2	3.4	2.0	7.5	8.4	4.0
EST. % ACTIVE	72.0												9.3

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.
ROW SUMMATIONS MAY DIFFER FROM PRINTED TOTALS BECAUSE SOME ACTIVE ROTORCRAFT DID NOT REPORT USE.

4.2 1989 ROTORCRAFT TOTAL FLIGHT HOURS BY EXPANDED USE CATEGORY
BY ROTORCRAFT TYPE

PAGE 1 OF 1

PRIMARY USE

ROTORCRAFT TYPE	PER- SONAL	EMERG MED SVCE				AIR TAXI	COMMUTER CARRIER	CORP- ORATE	INSTRUC- TIONAL	AERIAL APPL	AERIAL OBS	EXTRNL LOAD	OTHR USE	BUSI- NESS	OTHER	TOTAL
		UNDER FAR	135	NOT FAR	UND 135											
MANUFACTURER BUILT:																
PISTON TOTAL:																
EST. TOT. HOURS	35,108	4,155	3,553	14,007	0	12,415	224,075	168,783	210,781	19,506	9,346	17,913	5,227	728,589		
% STD. ERROR	8.0	19.2	30.6	16.0	0.0	32.6	4.3	5.5	4.8	30.3	21.0	8.8	27.8	2.3		
TURBINE: SINGLE ENGINE																
EST. TOT. HOURS	17,529	46,221	56,318	617,075	10,369	154,809	31,718	63,796	405,210	66,752	24,069	29,810	10,888	1,531,427		
% STD. ERROR	8.8	7.9	8.9	2.1	18.5	3.9	10.4	7.0	3.2	9.0	11.8	6.8	15.5	1.0		
TURBINE: MULTI - ENGINE																
EST. TOT. HOURS	2,242	49,806	43,637	265,047	4,008	101,116	13,698	4,253	9,428	47,437	794	5,390	4,057	543,577		
% STD. ERROR	34.5	12.7	13.0	4.6	19.2	5.9	27.4	29.5	27.3	12.5	56.5	17.5	23.0	2.1		
TURBINE TOTAL:																
EST. TOT. HOURS	19,771	96,027	99,956	882,122	14,378	255,925	45,416	68,048	414,638	114,189	24,863	35,199	14,945	2,075,004		
% STD. ERROR	8.5	7.6	7.8	2.0	14.6	3.2	10.3	6.8	3.2	7.4	11.6	6.3	13.0	0.9		
MANUFACTURER BUILT TOTAL:																
EST. TOT. HOURS	54,879	100,182	103,509	896,129	14,378	268,340	269,491	236,831	625,419	133,695	34,209	53,113	20,172	2,803,592		
% STD. ERROR	6.1	7.1	7.5	2.0	14.6	3.4	4.0	4.3	2.7	9.0	10.4	5.2	13.1	0.9		
AMATEUR BUILT:																
EST. TOT. HOURS	15,083	1,515	0	0	0	0	2,473	0	583	78	0	249	1,462	22,164		
% STD. ERROR	7.8	26.0	0.0	0.0	0.0	0.0	35.9	0.0	47.7	68.0	0.0	58.3	21.1	7.7		

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.
ROW SUMMATIONS MAY DIFFER FROM PRINTED TOTALS BECAUSE SOME ACTIVE ROTORCRAFT DID NOT REPORT USE.

4.3 1989 TOTAL ACTIVE ROTORCRAFT BY EXPANDED USE CATEGORY
BY SDR ROTORCRAFT MANUFACTURER/MODEL GROUP

PAGE 1 OF 6

ACTIVE USE

MANUFACTURER/ MODEL GROUP	TOTAL ACTIVE	PER- SONAL	EMERG MED SVCE			AIR TAXI	COMUTR CARRIER	CORP- ORATE	INSTRUC TIONAL	AERIAL APPL	AERIAL OBS	EXTNL LOAD	OTHR USE	WK NESS	BUSI- OTHER	IN- ACTIVE
			UNDER FAR135	NOT UND FAR135	UND FAR135											
OTHER 1 (*)																
EST. NO. ACTIVE	93	11	0	0	0	0	0	0	4	12	0	38	0	0	28	33
% STD. ERROR	0.0	87.6	0.0	0.0	0.0	0.0	0.0	0.0	151.6	85.4	0.0	39.6	0.0	0.0	50.1	
EST. % ACTIVE	73.8															
OTHER 2 (*)																
EST. NO. ACTIVE	91	1	0	2	2	4	0	17	2	8	30	17	3	1	6	22
% STD. ERROR	0.0	79.4	0.0	66.9	50.6	0.0	0.0	21.3	66.5	32.6	14.7	21.0	55.7	79.4	39.6	
EST. % ACTIVE	80.7															
OTHER 3 (*)																
EST. NO. ACTIVE	111	0	10	15	27	0	0	15	1	3	0	23	2	6	9	31
% STD. ERROR	0.0	0.0	23.2	19.0	13.2	0.0	0.0	18.6	66.4	46.7	0.0	14.5	56.5	31.1	25.7	
EST. % ACTIVE	78.4															
OTHER 4 (*)																
EST. NO. ACTIVE	572	456	34	0	0	0	0	0	22	0	9	3	0	4	45	1,218
% STD. ERROR	0.0	2.3	18.3	0.0	0.0	0.0	0.0	0.0	23.2	0.0	36.8	68.0	0.0	58.3	15.8	
EST. % ACTIVE	31.9															
AERORSJ2																
EST. NO. ACTIVE	20	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	18
% STD. ERROR	0.0															
EST. % ACTIVE	51.7															
AEROSPAS355																
EST. NO. ACTIVE	108	0	6	8	68	0	0	15	6	0	0	0	0	0	DIS	1
% STD. ERROR	0.0	0.0	24.8	21.6	4.6	0.0	0.0	14.8	25.2	0.0	DIS	0.0	0.0	DIS	DIS	
EST. % ACTIVE	99.0															
AEROSPSA316																
EST. NO. ACTIVE	61	0	17	5	15	0	0	0	0	DIS	0	20	DIS	0	0	30
% STD. ERROR	0.0	0.0	19.9	40.2	21.1	0.0	0.0	0.0	0.0	DIS	0.0	17.2	0.0	0.0	0.0	
EST. % ACTIVE	67.4															
AGUSTA205																
EST. NO. ACTIVE	30	0	0	DIS	7	0	DIS	DIS	0	6	0	12	0	0	0	2
% STD. ERROR	0.0	0.0	0.0	DIS	29.9	0.0	DIS	DIS	0.0	33.3	0.0	19.9	0.0	0.0	0.0	
EST. % ACTIVE	95.0															
AGUSTAA109																
EST. NO. ACTIVE	66	7	0	7	DIS	0	DIS	DIS	DIS	0	0	0	0	8	DIS	0
% STD. ERROR	0.0	35.1	0.0	36.9	DIS	0.0	DIS	DIS	DIS	0.0	0.0	0.0	0.0	33.1	DIS	
EST. % ACTIVE	100.0															

4.3 1989 TOTAL ACTIVE ROTORCRAFT BY EXPANDED USE CATEGORY
BY SDR ROTORCRAFT MANUFACTURER/MODEL GROUP

PAGE 2 OF 6

ACTIVE USE

MANUFACTURER/ MODEL GROUP	TOTAL ACTIVE	EMERG MED SVCE										OTHER WK BUSI-										IN- ACTIVE	
		PER- SONAL	DIS	DIS	DIS	AIR TAXI	COMMUTR CARRIER	CORP- ORATE	INSTRUC TIONAL	AERIAL APPL	AERIAL OBS	EXTNL LOAD	OTHER USE	NESS	OTHER								
AIRSPC18 EST. NO. ACTIVE & STD. ERROR EST. % ACTIVE	15 0.0 64.3	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	8
ARCNEH37 EST. NO. ACTIVE & STD. ERROR EST. % ACTIVE	0 0.0 0.0	0 0.0 0.0	0 0.0 0.0	0 0.0 0.0	0 0.0 0.0	0 0.0 0.0	0 0.0 0.0	0 0.0 0.0	0 0.0 0.0	0 0.0 0.0	0 0.0 0.0	0 0.0 0.0	0 0.0 0.0	0 0.0 0.0	0 0.0 0.0	0 0.0 0.0	0 0.0 0.0	0 0.0 0.0	0 0.0 0.0	0 0.0 0.0	0 0.0 0.0	0 0.0 0.0	0
BELL 204 EST. NO. ACTIVE & STD. ERROR EST. % ACTIVE	22 0.0 84.3	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	4
BELL 206 EST. NO. ACTIVE & STD. ERROR EST. % ACTIVE	1,810 0.0 95.3	42 9.2	53 8.2	65 7.4	695 1.8	16 15.1	314 3.1	44 9.0	74 6.9	376 2.8	10 18.9	18 14.1	86 6.3	17 14.5	90								
BELL 212 EST. NO. ACTIVE & STD. ERROR EST. % ACTIVE	106 0.0 90.2	0 0.0	0 0.0	DIS	71 7.3	0 0.0	15 25.9	0 0.0	5 47.7	5 47.7	DIS	0 0.0	0 0.0	DIS	11								
BELL 222 EST. NO. ACTIVE & STD. ERROR EST. % ACTIVE	70 0.0 84.3	DIS	9 16.3	DIS	17 11.3	0 0.0	29 7.5	DIS	DIS	DIS	DIS	0 0.0	DIS	DIS	13								
BELL 412 EST. NO. ACTIVE & STD. ERROR EST. % ACTIVE	61 0.0 100.0	0 0.0	DIS	14 20.4	28 12.1	0 0.0	14 20.4	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	DIS	0								
BELL 47 EST. NO. ACTIVE & STD. ERROR EST. % ACTIVE	579 0.0 69.1	62 13.2	6 44.7	8 38.4	34 18.3	0 0.0	12 31.2	34 18.1	217 5.9	143 7.9	9 35.7	8 37.5	33 18.4	12 31.2	259								
BOLKMS105 EST. NO. ACTIVE & STD. ERROR EST. % ACTIVE	171 0.0 97.7	DIS	22 34.7	19 37.8	91 12.4	0 0.0	23 33.6	DIS	DIS	12 47.0	0 0.0	0 0.0	0 0.0	0 0.0	4								

4.3 1989 TOTAL ACTIVE ROTORCRAFT BY EXPANDED USE CATEGORY
BY SDR ROTORCRAFT MANUFACTURER/MODEL GROUP

PAGE 3 OF 6

ACTIVE USE

MANUFACTURER/ MODEL GROUP	TOTAL ACTIVE	PER- SONAL	EMERG MED SVCE UNDER NOT UND FAR135 FAR135	AIR TAXI	COMMUTR CORP- CARRIER ORATE	INSTRUC TIONAL	AERIAL APPL	EXTNL LOAD	OTHR WK USE	BUSI- NESS	OTHER	IN- ACTIVE
BOLKMS117 EST. NO. ACTIVE & STD. ERROR EST. % ACTIVE	110 0.0 97.2	DIS 19.9	51 41.8	18 50.4	0 0.0	DIS 42.5	18 0.0	0 0.0	0 0.0	0 0.0	DIS 0.0	3
ENSTRMF28 (1) EST. NO. ACTIVE & STD. ERROR EST. % ACTIVE	219 0.0 73.2	61 10.4	8 32.5	0 0.0	DIS 0.0	42 13.4	6 37.7	0 0.0	DIS 10.6	60 10.6	DIS 0.0	80
ENSTRMF28 (2) EST. NO. ACTIVE & STD. ERROR EST. % ACTIVE	112 0.0 91.5	39 12.8	8 32.8	0 0.0	0 0.0	7 36.3	12 26.4	0 0.0	0 0.0	25 17.4	DIS 44.5	10
H23/HTE EST. NO. ACTIVE & STD. ERROR EST. % ACTIVE	12 0.0 32.1	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	24
H34/55 EST. NO. ACTIVE & STD. ERROR EST. % ACTIVE	DIS DIS 11.4	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS
HILLERFH1100 EST. NO. ACTIVE & STD. ERROR EST. % ACTIVE	29 0.0 45.2	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	35
HILLERUH12 (1) EST. NO. ACTIVE & STD. ERROR EST. % ACTIVE	351 0.0 63.0	82 10.2	DIS 0.0	0 0.0	DIS 0.0	DIS 44.7	5 0.0	DIS 0.0	DIS 0.0	DIS 0.0	DIS 0.0	207
HILLERUH12 (2) EST. NO. ACTIVE & STD. ERROR EST. % ACTIVE	22 0.0 80.2	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	5
HUGHES269 EST. NO. ACTIVE & STD. ERROR EST. % ACTIVE	476 0.0 70.4	62 10.0	6 33.7	DIS 0.0	DIS 0.0	DIS 20.7	16 7.3	106 14.8	31 14.8	26 16.1	DIS 37.2	200

4.3 1989 TOTAL ACTIVE ROTORCRAFT BY EXPANDED USE CATEGORY
BY SDR ROTORCRAFT MANUFACTURER/MODEL GROUP

PAGE 4 OF 6

ACTIVE USE

MANUFACTURER/ MODEL GROUP	TOTAL ACTIVE	EMERG MED SVCE										ACTIVE USE					IN- ACTIVE
		PER- SONAL	UNDER FAR135	NOT UND FAR135	AIR TAXI	COMMUTR CARRIER	CORP- ORATE	INSTRUC TIONAL	AERIAL APPL	EXTNL OBS	OTHR WK USE	DIS	DIS	DIS	DIS	DIS	
HUGHES369	551	37	9	DIS	66	0	55	24	47	192	29	29	54	DIS	DIS	DIS	49
EST. NO. ACTIVE	0.0	13.5	28.4		9.9	0.0	10.9	17.2	11.9	5.0	15.5	15.5	11.0				
& STD. ERROR	91.8																
EST. % ACTIVE																	
HYNES B2	53	26	DIS	0	0	0	0	6	DIS	8	0	0	DIS	0	DIS	0	73
EST. NO. ACTIVE	0.0	14.7		0.0	0.0	0.0	0.0	39.7		35.3	0.0	0.0		0.0		0.0	
& STD. ERROR	41.9																
EST. % ACTIVE																	
MACDOUG369	61	DIS	0	0	DIS	0	5	0	DIS	37	0	0	6	DIS	DIS	6	0
EST. NO. ACTIVE	0.0		0.0	0.0		0.0	23.5	0.0		5.8	0.0	0.0	21.2			22.0	
& STD. ERROR	100.0																
EST. % ACTIVE																	
MILITARY204	142	0	0	11	DIS	0	12	20	40	12	.11	0	DIS	31	DIS	26.0	59
EST. NO. ACTIVE	0.0	0.0	0.0	47.0		0.0	45.6	34.3	22.2	46.2	47.4	0.0					
& STD. ERROR	70.8																
EST. % ACTIVE																	
MILITARY47 (1)	219	33	DIS	0	0	0	DIS	48	85	35	0	0	9	DIS	DIS	0	156
EST. NO. ACTIVE	0.0	14.2		0.0	0.0	0.0		11.3	7.6	13.9	0.0	0.0	28.9			0.0	
& STD. ERROR	58.5																
EST. % ACTIVE																	
MILITARY47 (2)	15	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	5
EST. NO. ACTIVE	0.0																
& STD. ERROR	76.9																
EST. % ACTIVE																	
MODFD47	37	5	0	0	0	0	0	11	14	8	0	0	0	DIS	DIS	0	16
EST. NO. ACTIVE	0.0	56.3	0.0	0.0	0.0	0.0	0.0	31.7	27.7	40.3	0.0	0.0	0.0			0.0	
& STD. ERROR	70.4																
EST. % ACTIVE																	
ORLHELH19	44	20	0	0	0	0	0	0	24	0	0	0	0	DIS	DIS	0	29
EST. NO. ACTIVE	0.0	64.1	0.0	0.0	0.0	0.0	0.0	0.0	53.4	0.0	0.0	0.0	0.0			0.0	
& STD. ERROR	60.3																
EST. % ACTIVE																	
ORLHEL58	11	0	0	0	0	0	0	0	11	0	0	0	0	DIS	DIS	0	22
EST. NO. ACTIVE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	
& STD. ERROR	33.3																
EST. % ACTIVE																	

4.3 1989 TOTAL ACTIVE ROTORCRAFT BY EXPANDED USE CATEGORY
BY SDR ROTORCRAFT MANUFACTURER/MODEL GROUP

PAGE 5 OF 6

ACTIVE USE

MANUFACTURER/ MODEL GROUP	TOTAL ACTIVE	EMERG MED SVCE										OTHER WK BUSI-				IN- ACTIVE
		PER- SONAL	UNDER FAR135	NOT UND FAR135	AIR TAXI	COMMUTR CARRIER	CORP- ORATE	INSTRUC TIONAL	AERIAL APPL	AERIAL OBS	EXTNL LOAD	OTHR USE	NESS	OTHER		
ROBSINR22 EST. NO. ACTIVE & STD. ERROR EST. % ACTIVE	395 0.0 96.9	73 7.9	DIS 0.0	DIS 0.0	DIS 0.0	7 29.1	225 3.3	6 31.1	33 12.5	0 0.0	6 31.2	38 11.6	DIS	13		
SCHWZH269 EST. NO. ACTIVE & STD. ERROR EST. % ACTIVE	48 0.0 89.6	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	6		
SKRSKYS55 EST. NO. ACTIVE & STD. ERROR EST. % ACTIVE	7 0.0 20.0	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	27		
SKRSKYS58 EST. NO. ACTIVE & STD. ERROR EST. % ACTIVE	35 0.0 48.6	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	37		
SKRSKYS58T EST. NO. ACTIVE & STD. ERROR EST. % ACTIVE	27 0.0 71.4	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	11		
SKRSKYS61 EST. NO. ACTIVE & STD. ERROR EST. % ACTIVE	14 0.0 49.6	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	14		
SKRSKYS76 EST. NO. ACTIVE & STD. ERROR EST. % ACTIVE	167 0.0 95.6	DIS	9 19.2	8 21.4	55 6.6	DIS 0.0	82 4.7	0 0.0	0 0.0	0 0.0	0 0.0	5 26.9	5 26.7	8		
SNIAS 350 EST. NO. ACTIVE & STD. ERROR EST. % ACTIVE	255 0.0 94.0	DIS	13 19.6	11 21.1	120 4.8	0 0.0	40 10.6	6 28.2	DIS 11.3	35 11.3	6 28.1	DIS 0.0	12 20.1	DIS	16	
SNIAS SA318 EST. NO. ACTIVE & STD. ERROR EST. % ACTIVE	0 0.0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0	

4.3 1989 TOTAL ACTIVE ROTORCRAFT BY EXPANDED USE CATEGORY BY SDR ROTORCRAFT MANUFACTURER/MODEL GROUP

[illegible]

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.
ROW SUMMATIONS MAY DIFFER FROM PRINTED TOTALS BECAUSE SOME ACTIVE ROTORCRAFT DID NOT REPORT USE.

(*) THE "OTHER" CATEGORIES REPRESENT:

- | | |
|-------|--|
| OTHER | 1 - MANUFACTURER BUILT - PISTON |
| OTHER | 2 - MANUFACTURER BUILT - TURBINE-SINGLE ENGINE |
| OTHER | 3 - MANUFACTURER BUILT - TURBINE-MULTI ENGINE |
| OTHER | 4 - AMATEUR BUILT |

"DIS" INDICATES AN ESTIMATE WAS DELETED TO AVOID ANY POSSIBLE DISCLOSURE OF INDIVIDUAL RESPONSES.

- (1) INDICATES MANUFACTURER BUILT - PISTON
- (2) INDICATES MANUFACTURER BUILT - TURBINE-SINGLE ENGINE

4.4 1989 ROTORCRAFT TOTAL FLIGHT HOURS BY EXPANDED USE CATEGORY
BY SDR ROTORCRAFT MANUFACTURER/MODEL GROUP

PAGE 1 OF 6

PRIMARY USE

MANUFACTURER/ MODEL GROUP	EMERG MED SVCE				AIR COMMUTER		CORP- INSTRU- ORATE TIONAL		AERIAL		AERIAL		EXTNL		OTHER WK		BUSI- NESS		TOTAL
	PER- SONAL	UNDER FAR 135	NOT UND FAR 135	UND	TAXI	CARRIER	0.0	0.0	APPL	OBS	LOAD	USE	DIS	DIS	0.0	0.0			
OTHER 1 (*) EST. TOT. HOURS & STD. ERROR	268 94.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	4 151.6	3,744 87.1	0 0.0	4,230 102.1	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	1,655 53.3	9,901 47.5	
OTHER 2 (*) EST. TOT. HOURS & STD. ERROR	88 79.4	0 0.0	62 66.9	1,527 50.9	0 0.0	5,959 24.4	613 66.5	15,421 18.5	9,822 29.8	1,884 35.4	15,421 18.5	59 55.7	74 79.4	1,062 46.5	74 79.4	1,062 46.5	36,571 8.8		
OTHER 3 (*) EST. TOT. HOURS & STD. ERROR	0 0.0	4,284 24.9	5,772 23.1	17,082 14.4	0 0.0	5,127 20.6	46 66.4	1,243 46.7	37,317 16.3	0 0.0	1,435 33.7	794 56.5	280 31.4	67,573 8.2					
OTHER 4 (*) EST. TOT. HOURS & STD. ERROR	15,083 7.8	1,515 26.0	0 0.0	0 0.0	0 0.0	0 0.0	2,473 35.9	583 47.7	78 68.0	249 58.3	1,462 21.1	0 0.0	249 58.3	22,164 6.8					
AERORSJ2 EST. TOT. HOURS & STD. ERROR	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	576 16.9					
AEROSPAS355 EST. TOT. HOURS & STD. ERROR	0 0.0	2,022 27.5	3,961 22.2	43,334 5.0	0 0.0	6,629 23.1	1,698 32.1	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	DIS	58,663 3.0					
AEROSPAS316 EST. TOT. HOURS & STD. ERROR	0 0.0	10,054 21.0	2,090 40.2	4,383 33.9	0 0.0	0 0.0	0 0.0	DIS	8,580 23.5	0 0.0	0 0.0	DIS	0 0.0	27,516 7.7					
AGUSTA205 EST. TOT. HOURS & STD. ERROR	0 0.0	0 0.0	DIS	2,703 32.1	0 0.0	DIS	0 0.0	1,458 35.3	4,878 27.5	0 0.0	0 0.0	0 0.0	0 0.0	11,553 10.4					
AGUSTAA109 EST. TOT. HOURS & STD. ERROR	511 44.4	0 0.0	2,347 36.9	DIS	0 0.0	9,742 16.5	DIS	0 0.0	0 0.0	0 0.0	1,036 36.9	0 0.0	DIS	15,372 8.7					

4.4 1989 ROTORCRAFT TOTAL FLIGHT HOURS BY EXPANDED USE CATEGORY
BY SDR ROTORCRAFT MANUFACTURER/MODEL GROUP

PAGE 2 OF 6

MANUFACTURER/ MODEL GROUP	PRIMARY USE												TOTAL	
	EMERG MED SVCE			CORP- INSTRU- ORATE TIONAL			AERIAL OBS			BUSI- NESS				
PER- SONAL FAR 135	UNDER FAR 135	NOT UND FAR 135	AIR TAXI	COMMUTER CARRIER	CORP- ORATE	INSTRU- TIONAL	AERIAL APPL	AERIAL OBS	EXTNL LOAD	OTHR WK USE	BUSI- NESS	OTHER	TOTAL	
AIRSPC18 EST. TOT. HOURS & STD. ERROR	DIS 0.0	DIS 0.0	DIS 0.0	DIS 0.0	DIS 0.0	DIS 0.0	DIS 0.0	DIS 0.0	DIS 0.0	DIS 0.0	DIS 0.0	DIS 0.0	939 37.1	
ARCRNEH37 EST. TOT. HOURS & STD. ERROR	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	
BELL 204 EST. TOT. HOURS & STD. ERROR	DIS 0.0	DIS 0.0	DIS 0.0	DIS 0.0	DIS 0.0	DIS 0.0	DIS 0.0	DIS 0.0	DIS 0.0	DIS 0.0	DIS 0.0	DIS 0.0	5,621 6.6	
BELL 206 EST. TOT. HOURS & STD. ERROR	7,253 11.1	23,295 9.5	39,112 8.1	494,558 2.2	10,369 18.5	118,926 4.0	18,484 11.0	30,874 7.8	207,561 3.5	4,781 19.4	7,819 15.8	14,245 8.5	1,337 27.0	980,885 1.0
BELL 212 EST. TOT. HOURS & STD. ERROR	0 0.0	0 0.0	DIS 0.0	38,458 9.4	0 0.0	11,236 27.6	0 0.0	1,987 47.9	1,748 47.9	DIS 0.0	0 0.0	0 0.0	DIS 0.0	56,155 5.4
BELL 222 EST. TOT. HOURS & STD. ERROR	DIS 0.0	4,386 17.6	DIS 0.0	8,729 11.9	0 0.0	8,486 9.8	DIS 0.0	DIS 0.0	DIS 0.0	DIS 0.0	DIS 0.0	DIS 0.0	DIS 0.0	26,601 3.6
BELL 412 EST. TOT. HOURS & STD. ERROR	0 0.0	DIS 0.0	6,652 21.4	26,995 12.5	0 0.0	5,743 30.2	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	DIS 0.0	41,651 5.8
BELL 47 EST. TOT. HOURS & STD. ERROR	8,450 24.2	92 46.6	2,566 39.2	9,094 20.8	0 0.0	6,675 63.5	9,413 23.0	66,721 8.8	41,865 10.7	2,317 40.0	2,925 53.7	3,547 27.5	1,895 38.8	154,204 4.9
BOLKMS105 EST. TOT. HOURS & STD. ERROR	DIS 0.0	8,246 35.4	8,867 38.7	73,714 13.2	0 0.0	12,169 34.9	DIS 0.0	DIS 0.0	3,276 47.7	0 0.0	0 0.0	0 0.0	0 0.0	107,249 5.9

4.4 1989 ROTORCRAFT TOTAL FLIGHT HOURS BY EXPANDED USE CATEGORY
BY SDR ROTORCRAFT MANUFACTURER/MODEL GROUP

PAGE 3 OF 6

PRIMARY USE

MANUFACTURER/ MODEL GROUP	PER- SONAL	EMERG MED SVCE UNDER FAR 135	NOT UND FAR 135	AIR TAXI	COMMUTER CARRIER	CORP- ORATE	INSTRUC- TIONAL	AERIAL APPL	AERIAL OBS	EXTNL LOAD	OTHR WK USE	BUSI- NESS	OTHER	TOTAL
BOLKMS117 EST. TOT. HOURS & STD. ERROR	DIS 21.8	21,471 21.8	10,220 42.7	8,395 51.1	0 0.0	DIS 0.0	10,796 44.6	0 0.0	DIS 0.0	0 0.0	0 0.0	0 0.0	DIS 0.0	53,916 7.2
ENSTRMF28 (1) EST. TOT. HOURS & STD. ERROR	4,118 13.9	582 39.9	0 0.0	DIS 0.0	0 0.0	0 0.0	8,215 19.2	4,951 41.8	17,936 25.7	0 0.0	DIS 0.0	3,306 14.0	DIS 0.0	39,802 12.4
ENSTRMF28 (2) EST. TOT. HOURS & STD. ERROR	3,222 17.7	1,995 34.1	0 0.0	0 0.0	0 0.0	613 41.5	2,545 36.7	0 0.0	10,906 32.0	0 0.0	0 0.0	2,413 20.8	709 44.5	20,406 16.5
H23/HTE EST. TOT. HOURS & STD. ERROR	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	2,302 42.8
H34/55 EST. TOT. HOURS & STD. ERROR	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS
HILLERPH1100 EST. TOT. HOURS & STD. ERROR	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	3,871 26.3
HILLERUH12 (1) EST. TOT. HOURS & STD. ERROR	4,525 17.6	DIS	0 0.0	1,748 45.4	0 0.0	DIS	3,073 26.2	40,639 7.7	7,748 22.2	7,761 35.2	3,945 30.7	815 41.8	87 66.7	71,710 5.4
HILLERUH12 (2) EST. TOT. HOURS & STD. ERROR	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	6,559 19.6
HUGHES269 EST. TOT. HOURS & STD. ERROR	3,719 13.4	767 43.2	DIS	DIS	0 0.0	1,858 24.0	45,695 10.0	7,116 17.0	93,379 6.9	2,382 34.3	1,560 40.1	3,207 19.9	20 1154.2	162,945 4.2

4.4 1989 ROTORCRAFT TOTAL FLIGHT HOURS BY EXPANDED USE CATEGORY
BY SDR Rotorcraft Manufacturer/Model Group

PAGE 4 OF 6

PRIMARY USE

MANUFACTURER/ MODEL GROUP	PER- SONAL	EMERG MED SVCE				AIR TAXI	COMPUTER CARRIER	CORP- INSTRU- ORATE TIONAL		AERIAL APPL	AERIAL OBS	EXTNL LOAD	OTHER WK USE	BUSI- NESS	OTHER	TOTAL
		UNDER FAR 135	NOT UND FAR 135	DIS	0											
HUGHES369 EST. TOT. HOURS & STD. ERROR	3,653 17.9	3,535 38.8	DIS 0.0	DIS 0.0	37,869 11.1	0 0.0	11,831 13.5	8,562 18.9	15,039 13.7	120,194 7.2	21,154 17.3	13,065 18.2	7,408 14.7	DIS		245,743 3.3
HYNES P2 EST. TOT. HOURS & STD. ERROR	1,881 19.8	DIS 0.0	DIS 0.0	0 0.0	0 0.0	0 0.0	0 0.0	698 54.8	DIS 0.0	569 40.4	0 0.0	0 0.0	DIS 0.0	0 0.0		3,577 11.6
MACDOUG369 EST. TOT. HOURS & STD. ERROR	DIS	0 0.0	0 0.0	DIS 0.0	0 0.0	0 0.0	910 25.5	0 0.0	DIS 0.0	27,485 7.2	0 0.0	0 0.0	1,762 21.7	901 22.0		29,482 6.5
MILITARY204 EST. TOT. HOURS & STD. ERROR	0 0.0	0 0.0	1,675 50.7	DIS 0.0	0 0.0	0 0.0	1,227 47.6	614 35.6	6,225 23.9	969 50.0	2,117 50.2	0 0.0	DIS 0.0	3,128 33.0		17,028 10.3
MILITARY47 (1) EST. TOT. HOURS & STD. ERROR	1,613 18.2	DIS 0.0	0 0.0	0 0.0	0 0.0	0 0.0	DIS 0.0	9,273 17.0	21,721 12.8	7,709 22.8	0 0.0	0 0.0	1,488 37.3	0 0.0		43,459 7.4
MILITARY47 (2) EST. TOT. HOURS & STD. ERROR	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS		2,685 19.2
MODFD47 EST. TOT. HOURS & STD. ERROR	316 56.3	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	1,664 46.4	3,816 31.5	2,292 55.4	0 0.0	0 0.0	0 0.0	0 0.0		14,105 17.0
ORLHELH19 EST. TOT. HOURS & STD. ERROR	501 64.1	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	6,513 56.7	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0		7,014 48.7
ORLHELH58 EST. TOT. HOURS & STD. ERROR	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	220 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0		220 0.0

4.4 1989 ROTORCRAFT TOTAL FLIGHT HOURS BY EXPANDED USE CATEGORY
BY SDR ROTORCRAFT MANUFACTURER/MODEL GROUP

PRIMARY USE

MANUFACTURER/ MODEL GROUP	EMERG MED SVCE										OTHER				TOTAL
	PER- SONAL	UNDER FAR 135	NOT UND FAR 135	AIR TAXI	COMMUTER CARRIER	CORP- ORATE	INSTRUC- TIONAL	AERIAL APPL	AERIAL OBS	EXTNL LOAD	OTHR WK USE	BUSI- NESS			
ROBSYNR22 EST. TOT. HOURS & STD. ERROR	8,679 11.5	DIS	0 0.0	DIS	0 0.0	1,338 31.1	139,913 4.5	3,488 36.8	14,799 13.7	0 0.0	604 38.2	4,991 14.6	DIS	DIS	175,735 3.2
SCHWZHZ69 EST. TOT. HOURS & STD. ERROR	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	27,146 4.8
SKRSKYS55 EST. TOT. HOURS & STD. ERROR	0	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	323 20.5
SKRSKYS58 EST. TOT. HOURS & STD. ERROR	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	4,073 10.8
SKRSKYS58T EST. TOT. HOURS & STD. ERROR	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	12,170 15.9
SKRSKYS61 EST. TOT. HOURS & STD. ERROR	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	12,133 7.1
SKRSKYS76 EST. TOT. HOURS & STD. ERROR	DIS	7,150 19.2	3,926 22.7	47,306 7.5	DIS	41,354 5.9	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	2,018 27.7	333 40.1	DIS	104,265 2.6
SNIAS 350 EST. TOT. HOURS & STD. ERROR	DIS	5,971 20.2	5,794 23.6	73,886 5.8	0 0.0	12,502 12.7	885 46.1	DIS	17,465 12.8	4,483 35.8	DIS	2,745 21.3	DIS	DIS	128,380 2.8
SNIAS SA318 EST. TOT. HOURS & STD. ERROR	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0

4.4 1989 ROTORCRAFT TOTAL FLIGHT HOURS BY EXPANDED USE CATEGORY
BY SDR ROTORCRAFT MANUFACTURER/MODEL GROUP

PAGE 6 OF 6

PRIMARY USE

MANUFACTURER/ MODEL GROUP	EMERG MED SVCE										OTHER	TOTAL		
	PER- SONAL FAR 135	UNDER NOT UND FAR 135	AIR TAXI CARRIER	CORP- ORATE	INSTRUC- TIONAL	AERIAL APPL	AERIAL OBS	EXTNL LOAD	OTHER WK USE	BUSI- NESS				
SNIAS SA341 EST. TOT. HOURS & STD. ERROR	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	2,958 20.8		
TH55 EST. TOT. HOURS & STD. ERROR	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	5,021 7.0		
TOMCAT EST. TOT. HOURS & STD. ERROR	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	4,830 9.8	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	4,830 9.8		
TOTAL EST. TOT. HOURS & STD. ERROR	69,962 4.6	101,697 6.8	103,509 7.5	896,128 2.0	14,378 14.6	268,340 3.4	271,963 4.0	236,831 4.3	626,002 2.7	133,773 9.0	34,209 10.4	53,361 5.2	21,634 11.4	2,825,757 0.9

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.
ROW SUMMATIONS MAY DIFFER FROM PRINTED TOTALS BECAUSE SOME ACTIVE ROTORCRAFT DID NOT REPORT USE.

(*) THE "OTHER" CATEGORIES REPRESENT:

- OTHER 1 - MANUFACTURER BUILT - PISTON
- OTHER 2 - MANUFACTURER BUILT - TURBINE-SINGLE ENGINE
- OTHER 3 - MANUFACTURER BUILT - TURBINE-MULTI ENGINE
- OTHER 4 - AMATEUR BUILT

"DIS" INDICATES AN ESTIMATE WAS DELETED TO AVOID ANY POSSIBLE DISCLOSURE OF INDIVIDUAL RESPONSES.

(1) INDICATES MANUFACTURER BUILT - PISTON

(2) INDICATES MANUFACTURER BUILT - TURBINE-SINGLE ENGINE

4.5 1989 TOTAL ACTIVE ROTORCRAFT BY EXPANDED USE CATEGORY
BY REGION OF BASED ROTORCRAFT

PAGE 1 OF 2

ACTIVE USE

REGION	TOTAL ACTIVE	PER- SONAL	EMERG MED SVCE UNDER FAR135	NOT UND FAR135	AIR TAXI	COMMUTR CORP- CARRIER ORATE	INSTRUC TIONAL	AERIAL APPL	AERIAL OBS	EXTNL LOAD	OTHR WK USE	BUSI- NESS	OTHER	IN- ACTIVE
ALASKAN EST. NO. ACTIVE & STD. ERROR EST. & ACTIVE	248 5.3 86.1	21 22.2	DIS DIS	DIS DIS	164 6.3	0 0	11 21.5	5 47.5	0 0.0	12 25.6	13 31.4	DIS DIS	16 26.1 0.0	40
CENTRAL EST. NO. ACTIVE & STD. ERROR EST. & ACTIVE	216 6.4 64.3	44 16.0	DIS DIS	12 19.5	DIS DIS	DIS DIS	11 24.3	20 19.2	23 30.6	58 12.0	13 27.0	0 0.0	8 27.0 DIS	120
EASTERN EST. NO. ACTIVE & STD. ERROR EST. & ACTIVE	1,004 2.8 75.5	137 9.2	60 18.9	44 15.4	97 9.4	DIS DIS	179 5.6	121 8.8	73 16.7	154 6.3	DIS DIS	12 27.4	84 9.5 18.2	325
GREAT LAKES EST. NO. ACTIVE & STD. ERROR EST. & ACTIVE	752 3.4 62.2	153 8.0	50 17.1	13 17.1	28 16.4	DIS DIS	64 8.9	85 13.0	122 9.1	161 7.0	15 71.0	DIS DIS	60 10.8 32.0	456
NEW ENGLAND EST. NO. ACTIVE & STD. ERROR EST. & ACTIVE	292 4.8 77.5	70 11.6	10 45.3	DIS DIS	DIS DIS	DIS DIS	53 9.2	50 11.3	15 33.9	30 16.0	DIS DIS	DIS DIS	26 16.7 0.0	85
NORTHWEST MT. EST. NO. ACTIVE & STD. ERROR EST. & ACTIVE	882 3.1 69.9	93 13.5	47 13.6	DIS DIS	76 10.4	DIS DIS	92 9.9	57 11.8	153 8.0	87 9.8	100 11.2	35 16.1	49 12.7 20.4	380
SOUTHERN EST. NO. ACTIVE & STD. ERROR EST. & ACTIVE	1,223 2.6 69.6	198 9.4	55 14.6	34 17.4	76 8.1	DIS DIS	101 7.2	80 9.6	194 9.5	311 4.6	51 32.5	DIS DIS	60 10.3 23.6	535
SOUTHWESTERN EST. NO. ACTIVE & STD. ERROR EST. & ACTIVE	1,413 2.1 75.7	158 9.3	23 22.4	28 25.0	694 2.7	DIS DIS	123 7.7	66 11.3	62 11.7	153 6.9	22 29.6	DIS DIS	39 14.8 21.3	454

4.5 1989 TOTAL ACTIVE ROTORCRAFT BY EXPANDED USE CATEGORY
BY REGION OF BASED ROTORCRAFT

PAGE 2 OF 2

ACTIVE USE

REGION	TOTAL ACTIVE	PER- SONAL	EMERG UNDER FAR135	MED SVCE NOT UND FAR135	AIR TAXI	COMMUTR CARRIER	CORP- ORATE	INSTRUC TIONAL	AERIAL APPL	AERIAL OBS	EXTNL LOAD	OTHR USE	WK BUSI- NESS	OTHER	IN- ACTIVE
WESTERN-PACIFIC EST. NO. ACTIVE & STD. ERROR EST. & ACTIVE	1,458 2.1 73.7	197 7.2	37 15.0	63 14.2	209 5.2	DIS	88 8.2	210 5.5	209 8.2	304 4.6	44 10.0	28 16.8	63 10.6	DIS	521
TOTAL EST. NO. ACTIVE & STD. ERROR EST. & ACTIVE	7,498 0.6 72.0	1,072 2.6	285 6.1	216 7.1	1,342 1.8	21 12.3	727 2.7	695 3.2	833 3.4	1,298 2.0	263 7.5	104 8.4	416 4.0	216 9.3	2,915

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.
ROW SUMMATIONS MAY DIFFER FROM PRINTED TOTALS BECAUSE SOME ACTIVE ROTORCRAFT DID NOT REPORT USE.

"DIS" INDICATES AN ESTIMATE WAS DELETED TO AVOID ANY POSSIBLE DISCLOSURE OF INDIVIDUAL RESPONSES.

4.6 1989 ROTORCRAFT TOTAL FLIGHT HOURS BY EXPANDED USE CATEGORY
BY REGION OF BASED ROTORCRAFT

PAGE 1 OF 1

REGION	PRIMARY USE													TOTAL
	PER- SONAL	EMERG UNDER FAR 135	MED SVCE NOT UND FAR 135	AIR TAXI	COMPUTER CARRIER	CORP- ORATE	INSTRUC- TIONAL	AERIAL APPL	AERIAL OBS	EXTNL LOAD	OTHR WK USE	BUSI- NESS	OTHER	
ALASKAN EST. TOT. HOURS & STD. ERROR	360 22.6	DIS DIS	DIS DIS	80,198 6.7	0 0.0	5,781 23.7	100 47.5	0 0.0	4,937 27.0	6,546 33.2	DIS DIS	2,573 28.0	0 0.0	101,564 6.0
CENTRAL EST. TOT. HOURS & STD. ERROR	2,395 17.4	DIS DIS	8,291 20.6	DIS DIS	DIS DIS	1,824 25.7	5,835 22.5	3,912 32.9	22,466 14.9	1,984 29.5	0 0.0	588 27.2	DIS DIS	66,146 8.2
EASTERN EST. TOT. HOURS & STD. ERROR	9,249 11.3	18,085 21.5	20,088 16.7	40,930 9.7	DIS DIS	53,055 6.2	35,998 9.9	18,353 16.8	68,201 7.3	DIS DIS	2,023 27.8	11,365 11.0	4,125 20.9	279,010 3.5
GREAT LAKES EST. TOT. HOURS & STD. ERROR	6,332 11.9	15,710 18.4	7,230 16.7	11,350 17.0	DIS DIS	15,844 9.6	29,053 14.0	26,144 10.2	61,161 8.4	3,353 72.1	DIS DIS	7,558 12.3	1,219 32.1	186,105 4.3
NEW ENGLAND EST. TOT. HOURS & STD. ERROR	5,712 14.0	2,432 49.4	DIS DIS	DIS DIS	DIS DIS	24,495 9.9	24,461 12.3	2,951 33.3	11,789 17.5	DIS DIS	DIS DIS	3,143 18.8	0 0.0	87,844 5.8
NORTHWEST MT. EST. TOT. HOURS & STD. ERROR	5,779 16.4	17,354 13.6	DIS DIS	23,277 11.9	DIS DIS	30,013 16.1	19,510 14.2	43,775 8.9	37,153 11.1	71,336 11.8	11,053 19.1	4,621 18.6	1,975 24.3	277,378 4.4
SOUTHERN EST. TOT. HOURS & STD. ERROR	12,412 11.1	20,600 16.1	15,864 17.5	33,111 8.9	DIS DIS	24,520 7.9	30,924 11.4	48,608 11.2	136,260 5.4	4,197 47.0	DIS DIS	8,360 12.5	1,774 26.9	348,689 3.5
SOUTHWESTERN EST. TOT. HOURS & STD. ERROR	10,900 11.4	9,832 23.5	16,717 25.5	568,436 2.8	DIS DIS	74,532 8.3	16,283 13.4	19,730 12.4	53,125 8.5	7,855 33.8	DIS DIS	5,640 16.9	3,650 24.9	784,207 2.4
WESTERN-PACIFIC EST. TOT. HOURS & STD. ERROR	14,759 15.4	14,499 17.0	25,968 14.7	142,358 5.8	DIS DIS	26,780 9.7	114,666 6.7	70,368 9.4	219,330 5.8	22,469 12.1	12,253 19.6	7,939 12.4	DIS DIS	661,746 2.9
TOTAL EST. TOT. HOURS & STD. ERROR	69,962 4.6	101,697 6.8	103,509 7.5	896,129 2.0	14,378 14.6	268,340 3.4	271,963 4.0	236,831 4.3	626,003 2.7	133,773 9.0	34,209 10.4	53,361 5.2	21,634 11.4	2,825,756 0.9

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.
ROW SUMMATIONS MAY DIFFER FROM PRINTED TOTALS BECAUSE SOME ACTIVE ROTORCRAFT DID NOT REPORT USE.

"Dis" INDICATES AN ESTIMATE WAS DELETED TO AVOID ANY POSSIBLE DISCLOSURE OF INDIVIDUAL RESPONSES.

4.7 1989 TOTAL ACTIVE ROTORCRAFT BY EXPANDED USE CATEGORY
BY STATE OF BASED ROTORCRAFT

PAGE 1 OF 6

ACTIVE USE

STATE	TOTAL ACTIVE	EMERG MED SVCE										OTHER				IN- ACTIVE
		PER- SONAL	UNDER FAR135	NOT UND FAR135	AIR TAXI	COMMUTR CARRIER	CORP- ORATE	INSTRUC TIONAL	AERIAL APPL	AERIAL OBS	EXTNL LOAD	OTHR WK USE	NESS	DIS	DIS	
ALABAMA																
EST. NO. ACTIVE	96	6	8	DIS	DIS	0	12	6	19	16	10	0	0	5	69	
& STD. ERROR	10.6	47.6	23.8			0.0	23.6	32.2	34.4	17.2	30.3	0.0	0.0	50.9		
EST. % ACTIVE	58.0															
ALASKA																
EST. NO. ACTIVE	248	21	DIS	DIS	DIS	0	11	5	0	12	13	DIS	16	0	40	
& STD. ERROR	5.3	22.2				0.0	21.5	47.5	0.0	25.6	31.4		26.1	0.0		
EST. % ACTIVE	86.1															
ARIZONA																
EST. NO. ACTIVE	176	37	0	DIS	DIS	0	11	24	8	42	DIS	9	8	13	120	
& STD. ERROR	7.6	17.5	0.0			0.0	26.9	18.1	97.2	12.5		29.7	28.1	21.8		
EST. % ACTIVE	59.3															
ARKANSAS																
EST. NO. ACTIVE	37	18	DIS	DIS	DIS	0	0	DIS	6	10	0	0	0	0	28	
& STD. ERROR	14.9	25.4				0.0	0.0		38.3	30.4	0.0	0.0	0.0	0.0		
EST. % ACTIVE	57.5															
CALIFORNIA																
EST. NO. ACTIVE	1,072	131	30	43		0	76	182	195	208	41	16	48	5	352	
& STD. ERROR	2.5	8.9	15.4	18.5	8.0	0.0	8.6	5.9	7.8	5.3	9.7	22.5	12.2	47.3		
EST. % ACTIVE	75.3															
COLORADO																
EST. NO. ACTIVE	101	12	9	6	DIS	DIS	5	5	14	18	12	0	9	7	47	
& STD. ERROR	10.2	55.0	27.6	30.8			27.0	44.9	27.0	20.9	27.8	0.0	25.4	42.2		
EST. % ACTIVE	68.4															
CONNECTICUT																
EST. NO. ACTIVE	66	13	8	DIS		0	19	14	0	0	0	0	DIS	0	12	
& STD. ERROR	10.3	29.8	45.0		20.6	0.0	14.1	20.0	0.0	0.0	0.0	0.0		0.0		
EST. % ACTIVE	85.0															
DELAWARE																
EST. NO. ACTIVE	33	DIS	0	DIS		0	10	DIS	DIS	5	0	0	10	0	6	
& STD. ERROR	17.8		0.0		0.0	0.0	22.8			33.3	0.0	0.0	28.0	0.0		
EST. % ACTIVE	85.8															
DIST. OF COLUMBIA																
EST. NO. ACTIVE	32	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	0	
& STD. ERROR																
EST. % ACTIVE	100.0															

4.7 1989 TOTAL ACTIVE ROTORCRAFT BY EXPANDED USE CATEGORY
BY STATE OF BASED ROTORCRAFT

PAGE 2 OF 6

ACTIVE USE

STATE	TOTAL ACTIVE	PER- SONAL	EMERG MED SVCE UNDER NOT UND FAR135 FAR135	AIR TAXI	COMMUTR CORP- CARRIER ORATE	INSTRUC TIONAL	AERIAL APPL	AERIAL OBS	EXTNL LOAD	OTHR USE	WK BUSI- NESS	OTHER	IN- ACTIVE
FLORIDA													
EST. NO. ACTIVE	635	121	22	12	49	35	47	130	127	39	9	32	239
% STD. ERROR	4.3	13.6	31.1	21.1	10.7	12.4	12.8	12.7	7.9	41.4	21.9	14.8	
EST. % ACTIVE	72.6												
GEORGIA													
EST. NO. ACTIVE	127	21	0	DIS	9	0	DIS	10	57	0	0	5	65
% STD. ERROR	7.3	23.3	0.0		21.3	0.0	31.7	36.0	8.5	0.0	0.0	28.8	
EST. % ACTIVE	66.2											0.0	
HAWAII													
EST. NO. ACTIVE	126	8	DIS	DIS	68	DIS	DIS	6	25	0	DIS	DIS	24
% STD. ERROR	6.5	31.4			8.4			42.5	15.9	0.0		0.0	
EST. % ACTIVE	83.7												
IDAHO													
EST. NO. ACTIVE	86	17	0	DIS	10	0	DIS	17	DIS	6	0	7	22
% STD. ERROR	9.3	24.7	0.0		24.3	0.0	21.2	21.7		42.2	0.0	33.6	
EST. % ACTIVE	80.0												
ILLINOIS													
EST. NO. ACTIVE	137	19	16	6	DIS	0	13	22	15	12	DIS	15	95
% STD. ERROR	10.4	23.9	33.9	25.3		0.0	20.4	21.2	26.2	87.2		20.9	
EST. % ACTIVE	58.9						34.7					0.0	
INDIANA													
EST. NO. ACTIVE	124	34	9	0	DIS	DIS	11	20	35	0	DIS	6	58
% STD. ERROR	7.9	17.7	37.4	0.0		18.0	36.2	22.5	14.3	0.0		31.6	
EST. % ACTIVE	68.3												
IOWA													
EST. NO. ACTIVE	46	8	5	DIS	0	0	DIS	10	DIS	DIS	0	DIS	46
% STD. ERROR	16.7	40.0	40.7		0.0	0.0		58.1			0.0	0.0	
EST. % ACTIVE	50.2												
KANSAS													
EST. NO. ACTIVE	45	9	DIS	DIS	0	0	DIS	6	15	0	0	5	28
% STD. ERROR	13.5	34.1			0.0	0.0		49.5	25.0	0.0	0.0	34.0	
EST. % ACTIVE	61.2												
KENTUCKY													
EST. NO. ACTIVE	68	9	DIS	DIS	DIS	0	DIS	0	16	0	DIS	8	18
% STD. ERROR	8.8	35.7				0.0	14.9	0.0	20.7	0.0		27.1	
EST. % ACTIVE	79.4											0.0	

4.7 1989 TOTAL ACTIVE ROTORCRAFT BY EXPANDED USE CATEGORY
BY STATE OF BASED ROTORCRAFT

PAGE 3 OF 6

ACTIVE USE

STATE	TOTAL ACTIVE	PER- SONAL	EMERG MED SVCE			AIR TAXI	COMMUTR CORP- CARRIER ORATE			INSTRUC TIONAL	AERIAL APPL OBS			EXTNL LOAD	OTHR USE	WK NESS	OTHER	IN- ACTIVE
			UNDER FAR135	UNDER FAR135	NOT UND FAR135		DIS	DIS	DIS		DIS	DIS	DIS					
LOUISIANA																		
EST. NO. ACTIVE	645	19	6	8		497	DIS	81	DIS	22	9	8	8	0	0	8	DIS	59
& STD. ERROR	3.0	24.3	47.4	57.6		3.4		10.2		19.2	30.6	69.5		0.0	0.0	35.0		
EST. % ACTIVE	91.6																	
MAINE																		
EST. NO. ACTIVE	27	11	0	0		DIS	0	0	DIS	8	6	0	0	0	0	DIS	0	15
& STD. ERROR	20.1	32.2	0.0	0.0			0.0	0.0		55.3	37.6	0.0	0.0	0.0	0.0		0.0	
EST. % ACTIVE	63.9																	
MARYLAND																		
EST. NO. ACTIVE	101	18	0	25		DIS	0	11	15	0	25	0	0	0	0	8	DIS	10
& STD. ERROR	7.6	23.0	0.0	15.6			0.0	21.5	21.8	0.0	14.8	0.0	0.0	0.0	0.0	26.3		
EST. % ACTIVE	90.7																	
MASSACHUSETTS																		
EST. NO. ACTIVE	107	13	DIS	0		6	DIS	23	25	8	17	9	DIS	DIS	DIS	DIS	0	38
& STD. ERROR	8.1	22.7		0.0		25.1		15.0	16.3	39.6	22.2	38.5		0.0	0.0		0.0	
EST. % ACTIVE	73.6																	
MICHIGAN																		
EST. NO. ACTIVE	151	42	DIS	DIS		16	0	12	25	9	32	DIS	0	0	0	11	DIS	64
& STD. ERROR	7.2	16.1				18.7	0.0	26.0	18.2	37.2	16.7		0.0	0.0	0.0	24.1		
EST. % ACTIVE	70.1																	
MINNESOTA																		
EST. NO. ACTIVE	73	5	DIS	DIS		0	0	DIS	5	41	18	0	DIS	DIS	DIS	DIS	0	68
& STD. ERROR	10.6	46.3				0.0	0.0		39.9	16.4	17.3	0.0		0.0	0.0		0.0	
EST. % ACTIVE	52.0																	
MISSISSIPPI																		
EST. NO. ACTIVE	51	9	DIS	DIS		0	0	DIS	DIS	12	22	0	0	0	0	DIS	DIS	11
& STD. ERROR	12.8	35.9				0.0	0.0			29.9	19.3	0.0		0.0	0.0			
EST. % ACTIVE	82.7																	
MISSOURI																		
EST. NO. ACTIVE	114	19	6	7		5	DIS	10	9	5	39	10	0	0	0	DIS	0	37
& STD. ERROR	8.5	24.4	38.4	25.7		27.5		25.5	29.5	45.1	14.3	32.0	0.0	0.0	0.0		0.0	
EST. % ACTIVE	75.3																	
MONTANA																		
EST. NO. ACTIVE	69	5	7	0		9	DIS	14	DIS	6	9	6	0	0	0	6	0	28
& STD. ERROR	15.8	45.4	33.8	0.0		33.8		36.8		41.3	30.4	108.7	0.0	0.0	0.0	30.1	0.0	
EST. % ACTIVE	70.8																	

4.7 1989 TOTAL ACTIVE ROTORCRAFT BY EXPANDED USE CATEGORY
BY STATE OF BASED ROTORCRAFT

PAGE 4 OF 6

ACTIVE USE

STATE	TOTAL ACTIVE	PER- SONAL	EMERG MED SVCE				AIR COMMUTR CORP-				INSTRUC AERIAL EXTNL				OTHER WK BUSI-				IN- ACTIVE
			DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	
NEBRASKA	11	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	8
EST. NO. ACTIVE	29.9																		
& STD. ERROR	57.2																		
EST. % ACTIVE																			
NEVADA	85	20	DIS	12	19	0	0	0	0	0	DIS	0	29	0	0	5	42.7	DIS	24
EST. NO. ACTIVE	10.9	23.3		28.0	17.1	0.0	0.0	0.0	0.0	0.0		0.0	21.6	0.0	0.0				
& STD. ERROR	78.1																		
EST. % ACTIVE																			
NEW HAMPSHIRE	67	25	0	0	0	0	7	DIS	0	DIS	DIS	0	6	DIS	0	15	0	0	10
EST. NO. ACTIVE	9.4	17.5	0.0	0.0	0.0	0.0	26.5		0.0	0.0		0.0	33.6		0.0	22.8	0.0		
& STD. ERROR	87.4																		
EST. % ACTIVE																			
NEW JERSEY	202	18	DIS	7	37	DIS	65	DIS	20	17	DIS	17	18	0	0	7	5	37	37
EST. NO. ACTIVE	6.5	37.7		22.5	11.2		10.1		17.7	32.7		32.7	21.1	0.0	0.0	31.1	39.7		
& STD. ERROR	84.7																		
EST. % ACTIVE																			
NEW MEXICO	40	12	DIS	0	5	0	DIS	DIS	DIS	DIS	DIS	DIS	DIS	0	0	7	0	24	24
EST. NO. ACTIVE	25.1	68.0		0.0	31.3	0.0	0.0							0.0	0.0	42.1	0.0		
& STD. ERROR	62.3																		
EST. % ACTIVE																			
NEW YORK	239	41	8	DIS	16	0	22	DIS	34	11	DIS	11	46	DIS	5	25	22	94	94
EST. NO. ACTIVE	5.7	15.6	29.7		20.5	0.0	15.2		13.9	28.6		28.6	11.7		40.8	19.6	31.2		
& STD. ERROR	71.8																		
EST. % ACTIVE																			
NORTH CAROLINA	88	21	DIS	7	7	0	7	DIS	DIS	8	DIS	8	20	0	DIS	8	0	47	47
EST. NO. ACTIVE	9.5	25.1		25.5	23.5	0.0	29.9			39.7		39.7	20.1	0.0		31.8	0.0		
& STD. ERROR	65.2																		
EST. % ACTIVE																			
NORTH DAKOTA	23	7	0	0	DIS	0	0	DIS	6	9	DIS	9	DIS	0	0	0	0	5	5
EST. NO. ACTIVE	19.4	39.8	0.0	0.0		0.0	0.0		29.3	36.1		36.1		0.0	0.0	0.0	0.0		
& STD. ERROR	81.5																		
EST. % ACTIVE																			
OHIO	190	36	17	DIS	6	0	25	DIS	27	11	DIS	11	38	0	0	24	DIS	106	106
EST. NO. ACTIVE	7.1	17.3	26.0		31.0	0.0	13.1		30.6	28.5		28.5	13.6	0.0	0.0	18.4			
& STD. ERROR	64.1																		
EST. % ACTIVE																			

4.7 1989 TOTAL ACTIVE ROTORCRAFT BY EXPANDED USE CATEGORY
BY STATE OF BASED ROTORCRAFT

PAGE 5 OF 6

ACTIVE USE

STATE	TOTAL ACTIVE	PER- SONAL	EMERG UNDER FAR135	MED SVCE NOT UND FAR135	AIR TAXI	COMMUTR CARRIER	CORP- ORATE	INSTRUC TIONAL	AERIAL APPL	AERIAL OBS	EXTNL LOAD	OTHR WK USE	BUSI- NESS	OTHER	IN- ACTIVE
OKLAHOMA EST. NO. ACTIVE & STD. ERROR EST. & ACTIVE	92 11.9 57.2	26 20.7	DIS 0.0	DIS 0.0	6 34.3	0 0.0	7 28.8	8 38.0	11 30.3	16 22.5	0 0.0	0 0.0	DIS 0.0	7 104.7	69
OREGON EST. NO. ACTIVE & STD. ERROR EST. & ACTIVE	282 5.4 69.2	13 26.0	DIS DIS	DIS DIS	17 23.2	0 0.0	25 18.5	22 17.7	67 12.4	29 19.5	43 13.3	15 24.6	13 26.1	12 27.8	126
PENNSYLVANIA EST. NO. ACTIVE & STD. ERROR EST. & ACTIVE	258 6.2 63.3	37 17.1	DIS 26.5	DIS DIS	34 21.7	0 0.0	39 12.2	20 20.6	31 19.0	21 15.8	8 30.5	DIS DIS	20 19.0	9 32.3	149
RHODE ISLAND EST. NO. ACTIVE & STD. ERROR EST. & ACTIVE	10 21.4 67.5	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	5
SOUTH CAROLINA EST. NO. ACTIVE & STD. ERROR EST. & ACTIVE	67 13.3 57.5	DIS 25.3	7 0.0	DIS DIS	0 0.0	0 0.0	6 24.7	DIS DIS	12 29.1	21 18.5	DIS DIS	5 35.2	0 0.0	8 70.7	50
SOUTH DAKOTA EST. NO. ACTIVE & STD. ERROR EST. & ACTIVE	9 29.5 75.0	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	3
TENNESSEE EST. NO. ACTIVE & STD. ERROR EST. & ACTIVE	92 8.5 71.6	7 36.7	8 30.5	DIS DIS	DIS DIS	0 0.0	12 19.9	8 28.6	DIS DIS	32 14.8	0 0.0	0 0.0	6 30.9	9 26.4	37
TEXAS EST. NO. ACTIVE & STD. ERROR EST. & ACTIVE	599 3.4 68.6	81 11.0	8 46.7	18 28.5	185 6.2	DIS DIS	32 13.3	49 12.9	21 20.8	115 8.0	14 26.2	DIS DIS	23 17.5	32 16.6	274
UTAH EST. NO. ACTIVE & STD. ERROR EST. & ACTIVE	70 10.4 66.4	DIS	11 33.6	DIS DIS	22 19.5	0 0.0	DIS DIS	0 0.0	DIS DIS	5 34.0	DIS DIS	DIS DIS	0 0.0	0 0.0	35

[illegible]

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.
ROW SUMMATIONS MAY DIFFER FROM PRINTED TOTALS BECAUSE SOME ACTIVE ROTORCRAFT DID NOT REPORT USE.

"DIS" INDICATES AN ESTIMATE WAS DELETED TO AVOID ANY POSSIBLE DISCLOSURE OF INDIVIDUAL RESPONSES.

4.8 1989 ROTORCRAFT TOTAL FLIGHT HOURS BY EXPANDED USE CATEGORY
BY STATE OF BASED ROTORCRAFT

PAGE 1 OF 6

STATE	PRIMARY USE													TOTAL
	PER- SONAL	EMERG MED SVCE UNDER NOT UND FAR 135 FAR 135	AIR TAXI	COMMUTER CARRIER	CORP- ORATE	INSTRUC- TIONAL	AERIAL APPL	AERIAL OBS	EXTNL LOAD	OTHR WK USE	BUSI- NESS	OTHER		
ALABAMA EST. TOT. HOURS & STD. ERROR	231 63.2	4,726 24.7	DIS	0 0.0	2,275 24.9	390 32.0	7,344 44.7	3,266 21.2	2,599 34.1	0 0.0	0 0.0	148 49.4	22,813 16.5	
ALASKA EST. TOT. HOURS & STD. ERROR	360 22.6	DIS	DIS 80,198 6.7	0 0.0	5,781 23.7	100 47.5	0 0.0	4,937 27.0	6,546 33.2	DIS	2,573 28.0	0 0.0	101,564 6.0	
ARIZONA EST. TOT. HOURS & STD. ERROR	1,987 20.3	0 0.0	DIS 14,584 17.3	0 0.0	3,515 27.8	11,505 20.5	2,395 95.4	21,149 13.6	DIS	7,331 29.4	1,490 28.1	1,735 23.0	69,153 8.6	
ARKANSAS EST. TOT. HOURS & STD. ERROR	765 32.4	DIS	DIS	0 0.0	0 0.0	DIS	2,339 38.2	2,386 31.7	0 0.0	0 0.0	0 0.0	0 0.0	7,641 16.2	
CALIFORNIA EST. TOT. HOURS & STD. ERROR	8,434 15.3	8,652 16.7	15,122 19.3	47,463 8.6	0 0.0	23,001 10.3	65,797 9.1	157,840 6.3	22,387 11.9	3,078 26.9	5,642 13.8	638 48.7	447,674 3.4	
COLORADO EST. TOT. HOURS & STD. ERROR	498 53.7	4,822 27.7	2,712 31.2	DIS	DIS	2,555 30.5	3,769 29.6	12,165 20.9	4,001 29.4	0 0.0	1,921 32.9	356 63.7	32,864 11.6	
CONNECTICUT EST. TOT. HOURS & STD. ERROR	589 30.0	1,751 47.8	DIS	2,232 21.7	0 0.0	10,927 14.9	0 0.0	0 0.0	0 0.0	0 0.0	DIS	0 0.0	23,984 11.4	
DELAWARE EST. TOT. HOURS & STD. ERROR	DIS	0 0.0	DIS	0 0.0	1,892 24.5	DIS	DIS	2,798 34.2	0 0.0	0 0.0	1,329 28.0	0 0.0	9,434 21.2	
DIST. OF COLUMBIA EST. TOT. HOURS & STD. ERROR	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	5,229 24.0	

4.8 1989 ROTORCRAFT TOTAL FLIGHT HOURS BY EXPANDED USE CATEGORY
BY STATE OF BASED ROTORCRAFT

PAGE 2 OF 6

STATE	PRIMARY USE													TOTAL
	PER- SONAL	EMERG UNDER FAR 135	MED SVCE NOT UND FAR 135	AIR TAXI	COMMUTER CARRIER	CORP- ORATE	INSTRUC- TIONAL	AERIAL APPL	AERIAL OBS	EXTNL LOAD	OTHR WK USE	BUSI- NESS	OTHER	
FLORIDA														
EST. TOT. HOURS	10,137	7,492	5,907	24,015	DIS	8,772	21,282	30,105	46,513	1,402	3,944	3,933	DIS	170,135
% STD. ERROR	14.1	36.2	22.4	11.5		13.3	14.0	13.1	9.1	63.2	24.1	15.3		5.5
GEORGIA														
EST. TOT. HOURS	892	0	DIS	3,775	0	DIS	3,764	4,094	39,659	0	0	1,046	0	53,778
% STD. ERROR	27.4	0.0		25.0	0.0		32.5	37.1	8.9	0.0	0.0	30.3	0.0	8.6
HAWAII														
EST. TOT. HOURS	459	DIS	DIS	71,074	DIS	DIS	DIS	2,176	15,932	0	DIS	DIS	0	103,653
% STD. ERROR	36.4			8.9				42.6	21.4	0.0			0.0	7.5
IDAHO														
EST. TOT. HOURS	2,171	0	DIS	3,893	0	1,978	DIS	5,056	DIS	2,596	0	511	DIS	22,545
% STD. ERROR	24.8	0.0		25.2	0.0	24.7		23.1		38.8	0.0	33.6		11.1
ILLINOIS														
EST. TOT. HOURS	975	4,172	3,243	DIS	0	2,692	2,582	3,707	3,071	2,394	DIS	1,923	0	27,473
% STD. ERROR	26.4	36.7	25.8		0.0	22.3	35.2	22.4	27.8	87.4		26.3	0.0	11.6
INDIANA														
EST. TOT. HOURS	1,609	1,096	0	DIS	DIS	2,782	933	4,631	15,926	0	DIS	2,011	DIS	29,568
% STD. ERROR	26.4	41.4	0.0			21.6	47.4	22.7	17.3	0.0		31.7		10.3
IOWA														
EST. TOT. HOURS	163	1,459	DIS	0	0	DIS	3,690	1,010	DIS	DIS	0	0	DIS	12,910
% STD. ERROR	50.0	42.6		0.0	0.0		30.1	63.7			0.0	0.0		21.9
KANSAS														
EST. TOT. HOURS	380	DIS	DIS	0	0	0	DIS	1,337	5,934	0	0	316	DIS	11,080
% STD. ERROR	41.8			0.0	0.0	0.0		50.1	33.7	0.0	0.0	34.7		20.5
KENTUCKY														
EST. TOT. HOURS	152	DIS	DIS	DIS	0	6,023	DIS	0	6,541	0	DIS	457	0	15,884
% STD. ERROR	38.5				0.0	17.0		0.0	21.8	0.0		33.5	0.0	11.2

4.8 1989 ROTORCRAFT TOTAL FLIGHT HOURS BY EXPANDED USE CATEGORY
BY STATE OF BASED ROTORCRAFT

PAGE 3 OF 6

STATE	PRIMARY USE														TOTAL
	PER- SONAL	EMERG UNDER FAR	MED 135 FAR	SVCE NOT UND 135	AIR TAXI	COMPUTER CARRIER	CORP- ORATE	INSTRUC- TIONAL	AERIAL APPL	AERIAL OBS	EXTNL LOAD	OTHR WK USE	BUSI- NESS	OTHER	
LOUISIANA EST. TOT. HOURS & STD. ERROR	2,000 25.1	1,241 52.0	5,077 58.0	441,847 3.5	DIS 3.5	DIS 0.0	67,053 10.4	DIS 0.0	6,130 20.1	699 35.9	6,084 72.7	0 0.0	965 35.6	DIS 0.0	511,657 3.2
MAINE EST. TOT. HOURS & STD. ERROR	230 32.5	0 0.0	0 0.0	DIS 0.0	DIS 0.0	0 0.0	0 0.0	DIS 0.0	869 53.9	2,110 38.4	0 0.0	0 0.0	DIS 0.0	0 0.0	4,623 22.2
MARYLAND EST. TOT. HOURS & STD. ERROR	1,309 24.2	0 0.0	11,849 17.1	DIS 0.0	DIS 0.0	0 0.0	2,996 24.1	3,755 24.6	0 0.0	10,675 16.5	0 0.0	0 0.0	1,008 26.0	DIS 0.0	31,635 8.7
MASSACHUSETTS EST. TOT. HOURS & STD. ERROR	1,248 26.1	DIS 0.0	0 0.0	1,792 25.4	DIS 0.0	DIS 0.0	11,078 15.5	12,133 17.7	2,082 40.0	7,686 24.0	1,678 39.7	DIS 0.0	DIS 0.0	0 0.0	39,631 9.6
MICHIGAN EST. TOT. HOURS & STD. ERROR	1,998 17.6	DIS 0.0	DIS 0.0	7,724 19.5	DIS 0.0	DIS 0.0	2,330 26.0	3,910 22.1	1,898 38.9	14,407 18.9	DIS 0.0	0 0.0	1,384 24.8	DIS 0.0	35,872 9.4
MINNESOTA EST. TOT. HOURS & STD. ERROR	82 49.2	DIS 0.0	DIS 0.0	DIS 0.0	DIS 0.0	DIS 0.0	DIS 0.0	1,277 41.2	9,631 17.8	5,912 18.4	0 0.0	DIS 0.0	DIS 0.0	0 0.0	17,862 11.8
MISSISSIPPI EST. TOT. HOURS & STD. ERROR	313 37.9	DIS 0.0	DIS 0.0	DIS 0.0	DIS 0.0	DIS 0.0	DIS 0.0	DIS 0.0	3,768 30.2	5,721 20.4	0 0.0	0 0.0	DIS 0.0	DIS 0.0	12,107 13.8
MISSOURI EST. TOT. HOURS & STD. ERROR	1,370 26.9	3,751 39.7	4,441 26.4	4,073 29.9	DIS 0.0	DIS 0.0	1,670 27.0	1,138 29.2	1,343 44.8	15,945 16.6	1,879 32.0	0 0.0	DIS 0.0	0 0.0	38,258 10.4
MONTANA EST. TOT. HOURS & STD. ERROR	172 45.1	1,491 35.2	0 0.0	2,522 34.4	DIS 0.0	DIS 0.0	2,080 38.2	DIS 0.0	1,968 41.2	2,393 30.8	6,254 117.5	0 0.0	346 33.3	0 0.0	19,072 16.0

4.8 1989 ROTORCRAFT TOTAL FLIGHT HOURS BY EXPANDED USE CATEGORY
BY STATE OF BASED ROTORCRAFT

PAGE 4 OF 6

STATE	PRIMARY USE													TOTAL
	PER- SONAL	EMERG MED SVCE UNDER NOT UND FAR 135 FAR 135	AIR TAXI	COMMUTER CARRIER	CORP- ORATE	INSTRUC- TIONAL	AERIAL APPL	AERIAL OBS	EXTNL LOAD	OTHR WK USE	BUSI- NESS	OTHER		
NEBRASKA EST. TOT. HOURS & STD. ERROR	DIS 3,879 23.1	DIS 4,524 27.8	DIS 9,237 19.2	DIS 0 0.0	DIS 0 0.0	DIS 0 0.0	DIS 0 0.0	DIS 24,325 27.9	DIS 0 0.0	DIS 0 0.0	DIS 178 41.0	DIS	DIS 790 34.1	
NEVADA EST. TOT. HOURS & STD. ERROR	DIS 3,280 19.1	DIS 0 0.0	DIS 0 0.0	DIS 0 0.0	DIS 1,764 27.6	DIS 0 0.0	DIS 0 0.0	DIS 1,819 34.4	DIS 0 0.0	DIS 0 0.0	DIS 1,970 24.8	DIS 0 0.0	DIS 13,568 11.0	
NEW HAMPSHIRE EST. TOT. HOURS & STD. ERROR	DIS 1,217 43.0	DIS 1,744 22.5	DIS 15,864 11.7	DIS 20,236 10.9	DIS 7,463 19.0	DIS 3,629 31.9	DIS 4,570 22.0	DIS 0 0.0	DIS 0 0.0	DIS 0 0.0	DIS 1,121 45.4	DIS 272 46.1	DIS 59,030 7.1	
NEW JERSEY EST. TOT. HOURS & STD. ERROR	DIS 183 72.8	DIS 0 0.0	DIS 1,829 31.1	DIS 0 0.0	DIS 0 0.0	DIS 0 0.0	DIS 0 0.0	DIS 0 0.0	DIS 0 0.0	DIS 0 0.0	DIS 274 47.9	DIS 0 0.0	DIS 7,221 34.4	
NEW MEXICO EST. TOT. HOURS & STD. ERROR	DIS 3,164 19.8	DIS 1,782 39.1	DIS 5,349 23.6	DIS 0 0.0	DIS 6,478 16.0	DIS 13,516 15.8	DIS 2,483 28.7	DIS 27,072 13.8	DIS 0 0.0	DIS 1,347 39.2	DIS 3,216 21.9	DIS 2,612 31.0	DIS 67,804 7.2	
NEW YORK EST. TOT. HOURS & STD. ERROR	DIS 318 26.4	DIS 4,445 24.8	DIS 1,904 24.2	DIS 0 0.0	DIS 1,943 28.3	DIS 0 0.0	DIS 1,525 40.4	DIS 9,996 22.0	DIS 0 0.0	DIS 0 0.0	DIS 609 33.2	DIS 0 0.0	DIS 22,399 11.3	
NORTH CAROLINA EST. TOT. HOURS & STD. ERROR	DIS 1,208 30.0	DIS 6,842 27.0	DIS 1,626 32.5	DIS 0 0.0	DIS 7,017 14.1	DIS 14,752 30.9	DIS 3,629 29.3	DIS 14,901 17.0	DIS 0 0.0	DIS 0 0.0	DIS 1,902 19.2	DIS 0 0.0	DIS 53,609 8.2	
NORTH DAKOTA EST. TOT. HOURS & STD. ERROR														
OHIO EST. TOT. HOURS & STD. ERROR														

4.8 1989 ROTORCRAFT TOTAL FLIGHT HOURS BY EXPANDED USE CATEGORY
BY STATE OF BASED ROTORCRAFT

PAGE 5 OF 6

STATE	PRIMARY USE											OTHER	TOTAL
	PER- SONAL	EMERG UNDER FAR 135	MED SVCE NOT UND FAR 135	AIR TAXI	COMPUTER CARRIER	CORP- ORATE	INSTRUC- TIONAL	AERIAL APPL	AERIAL OBS	EXTNL LOAD	OTHR WK USE	BUSI- NESS	
OKLAHOMA EST. TOT. HOURS & STD. ERROR	2,145 23.8	DIS 0.0	0 0.0	1,959 35.9	0 0.0	1,064 29.5	1,268 38.3	3,249 29.7	6,479 23.7	0 0.0	0 0.0	DIS 1,096 141.7	21,361 13.8
OREGON EST. TOT. HOURS & STD. ERROR	535 26.7	DIS 0.0	DIS 0.0	3,575 27.0	0 0.0	7,291 18.8	11,622 19.9	19,945 13.7	10,940 20.5	32,960 13.6	6,790 24.9	312 26.9	95,024 6.8
PENNSYLVANIA EST. TOT. HOURS & STD. ERROR	1,898 19.5	14,152 28.5	DIS 0.0	14,872 21.6	0 0.0	11,627 12.7	5,839 21.8	7,535 19.6	8,231 19.1	3,536 32.4	DIS 0.0	2,330 19.7	70,076 7.9
RHODE ISLAND EST. TOT. HOURS & STD. ERROR	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	2,041 25.2
SOUTH CAROLINA EST. TOT. HOURS & STD. ERROR	DIS	1,675 24.9	0 0.0	0 0.0	0 0.0	1,181 24.7	DIS	1,459 29.4	12,643 21.2	DIS	504 35.4	0 0.0	21,569 17.2
SOUTH DAKOTA EST. TOT. HOURS & STD. ERROR	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	1,838 30.0
TENNESSEE EST. TOT. HOURS & STD. ERROR	203 38.9	3,539 31.1	DIS 0.0	DIS 0.0	0 0.0	2,573 21.6	1,479 28.8	DIS	11,496 16.5	0 0.0	0 0.0	2,104 32.4	24,176 10.1
TEXAS EST. TOT. HOURS & STD. ERROR	5,808 13.5	4,296 47.0	10,731 29.1	122,532 6.5	DIS 0.0	5,327 15.1	11,892 14.5	6,715 21.6	42,743 9.8	1,771 31.2	DIS	4,034 18.4	232,607 4.2
UTAH EST. TOT. HOURS & STD. ERROR	DIS	6,295 32.9	DIS 0.0	8,038 21.4	0 0.0	DIS 0.0	0 0.0	DIS	1,165 32.9	DIS	DIS	0 0.0	22,335 13.6

4.8 1989 ROTORCRAFT TOTAL FLIGHT HOURS BY EXPANDED USE CATEGORY
BY STATE OF BASED ROTORCRAFT

PAGE 6 OF 6

STATE	PRIMARY USE														OTHER	TOTAL
	PER- SONAL	EMERG MED SVCE UNDER NOT UND FAR 135 FAR 135	AIR TAXI	COMMUTER CARRIER	CORP- ORATE	INSTRUC- TIONAL	AERIAL APPL	AERIAL OBS	EXTNL LOAD	OTHR WK USE	BUSI- NESS					
VERMONT																
EST. TOT. HOURS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS	862	
% STD. ERROR	29.4	82.6	551	DIS	0	5,452	3,682	3,719	6,977	0	DIS	475	841	46.4	24,649	38.6
VIRGINIA																
EST. TOT. HOURS	1,064	551	DIS	DIS	0	5,452	3,682	3,719	6,977	0	DIS	475	841	46.4	24,649	12.1
% STD. ERROR	29.4	82.6			0.0	20.1	28.6	68.3	19.7	0.0		42.1				
WASHINGTON																
EST. TOT. HOURS	2,096	2,810	0	DIS	0	15,040	6,779	10,935	9,158	22,999	DIS	684	405	42.1	72,039	9.3
% STD. ERROR	24.4	29.8	0.0		0.0	16.3	21.1	17.9	18.3	19.0		34.6				
WEST VIRGINIA																
EST. TOT. HOURS	DIS	DIS	0	DIS	0	3,654	0	DIS	4,445	0	0	1,333	0	0	12,559	
% STD. ERROR			0.0		0.0	22.1	0.0		21.4	0.0	0.0	30.9	0.0	0.0	12.3	
WISCONSIN																
EST. TOT. HOURS	157	DIS	0	DIS	0	DIS	DIS	1,527	4,080	DIS	0	0	0	0	8,619	
% STD. ERROR	48.0		0.0		0.0			33.0	30.1		0.0	0.0	0.0	0.0	19.5	
WYOMING																
EST. TOT. HOURS	0	DIS	0	2,405	DIS	DIS	0	1,804	0	0	1,773	848	0	0	6,723	
% STD. ERROR	0.0		0.0	28.6			0.0	32.4	0.0	0.0	26.4	37.2	0.0	0.0	16.8	
PUERTO RICO																
EST. TOT. HOURS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% STD. ERROR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.
ROW SUMMATIONS MAY DIFFER FROM PRINTED TOTALS BECAUSE SOME ACTIVE ROTORCRAFT DID NOT REPORT USE.

"DIS" INDICATES AN ESTIMATE WAS DELETED TO AVOID ANY POSSIBLE DISCLOSURE OF INDIVIDUAL RESPONSES.

CHAPTER V

AIRFRAME HOURS

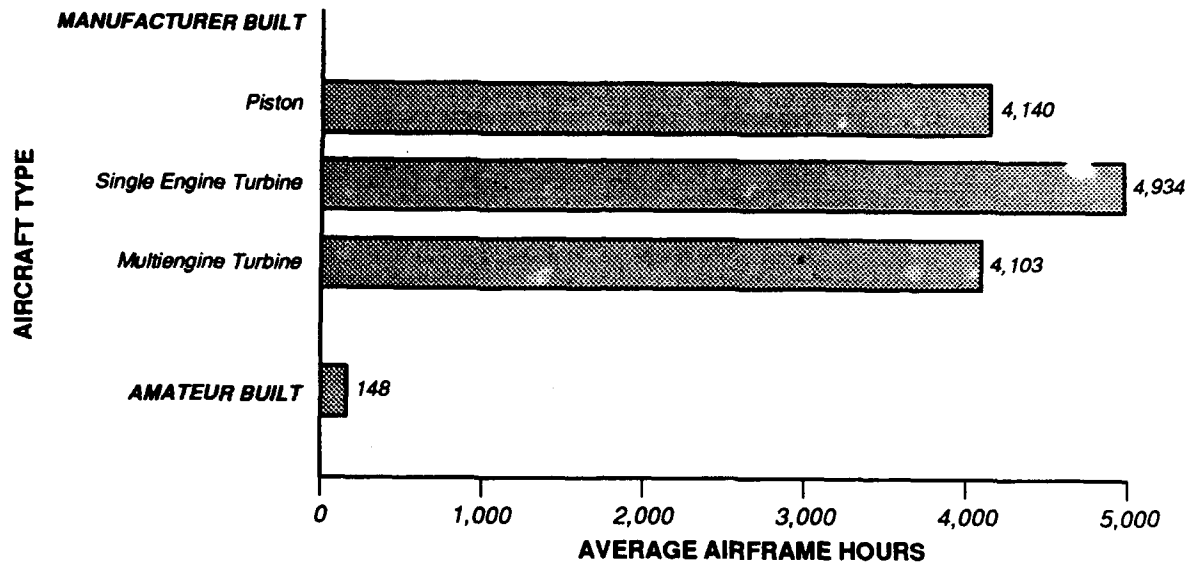
The subject of aircraft aging is becoming increasingly important because of recent questions raised about the safety of commercial air carriers relative to the age of their aircraft. Similar questions might be asked of the rotorcraft fleet. Data in this chapter can serve as input to studies correlating age and safety.

This chapter presents two tables and one figure: Table 5.1 presents data on the total and average airframe hours per active rotorcraft by rotorcraft type. Table 5.2 presents the total and average airframe hours per active rotorcraft by SDR Rotorcraft Manufacturer/Model Group. Figure 5.1 graphically displays the average airframe hours per rotorcraft type.

Major findings of this chapter include:

- o The total airframe hours for the active rotorcraft population is 31.4 million hours.
- o The active rotorcraft population has an average of approximately 4,191 lifetime airframe hours per rotorcraft.
- o Although the piston rotorcraft have the greatest population, they do not have the highest total airframe hours. Single engine turbine rotorcraft have both the highest total airframe hours (16.0 million) and average airframe hours (4,934).
- o As one might expect, the amateur built rotorcraft have both the lowest total airframe hours and the lowest average airframe hours, with only 84,341 total airframe hours and 147.5 average airframe hours.

Figure 5.1
1989 ROTORCRAFT AVERAGE AIRFRAME HOURS
BY ROTORCRAFT TYPE



SOURCE: Table 5.1

5.1 1989 ROTORCRAFT TOTAL AIRFRAME HOURS AND AVERAGE AIRFRAME HOURS
BY ROTORCRAFT TYPE

PAGE 1 OF 1

ROTORCRAFT TYPE	ROTORCRAFT POPULATION SIZE	ESTIMATE OF NUMBER ACTIVE	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR	ESTIMATE OF TOTAL AIRFRAME HOURS	PERCENT STANDARD ERROR	ESTIMATE AVERAGE AIRFRAME HOURS	PERCENT STANDARD ERROR
MANUFACTURER BUILT:									
PISTON TOTAL:	3,994	2,684	1.2	67.2	0.8	11,321,890	2.2	4,139.7	1.6
TURBINE: SINGLE ENGINE	3,616	3,248	0.5	89.8	0.4	15,969,102	1.2	4,934.3	1.1
TURBINE: MULTI - ENGINE	1,069	984	0.7	92.0	0.7	4,048,312	2.8	4,103.3	2.7
TURBINE TOTAL:	4,685	4,232	0.4	90.3	0.4	20,017,414	1.1	4,749.0	1.0
MANUFACTURER BUILT TOTAL:	8,679	6,916	0.5	79.7	0.4	31,339,304	1.1	4,526.2	0.9
AMATEUR BUILT	1,790	572	3.5	32.0	1.1	84,341	7.3	147.5	6.4
TOTAL - ALL ROTORCRAFT:	10,469	7,488	0.6	71.5	0.4	31,423,644	1.1	4,191.2	0.9

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

5.2 1989 ROTORCRAFT TOTAL AIRFRAME HOURS AND AVERAGE AIRFRAME HOURS
BY SDR ROTORCRAFT MANUFACTURER/MODEL GROUP

PAGE 1 OF 3

MANUFACTURER/ MODEL GROUP	ROTORCRAFT POPULATION SIZE	ESTIMATE OF NUMBER ACTIVE	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR	ESTIMATE OF TOTAL AIRFRAME HOURS	PERCENT STANDARD ERROR	ESTIMATE AVERAGE AIRFRAME HOURS	PERCENT STANDARD ERROR
OTHER 1 (*)	126	93	14.7	73.8	10.9	289,913	21.6	3,117.3	15.8
OTHER 2 (*)	113	91	4.4	80.7	3.5	264,069	10.6	2,896.4	9.7
OTHER 3 (*)	142	111	3.3	78.4	2.6	547,328	10.4	4,916.1	9.9
OTHER 4 (*)	1,790	572	3.5	31.9	1.1	84,341	7.3	147.5	6.4
AERORSJ2	38	20	13.3	51.7	6.9	4,444	17.4	226.4	11.2
AEROSPAS355	109	108	0.6	99.0	0.6	407,886	3.6	3,780.5	3.5
AEROSPSA316	91	61	6.4	67.4	4.3	364,388	8.8	5,945.0	6.1
AGUSTA205	32	30	3.4	95.0	3.2	226,074	7.8	7,436.6	7.0
AGUSTAA109	66	66	0.0	100.0	0.0	69,510	7.0	1,053.2	7.0
AIRSEC18	23	15	14.9	64.3	9.6	6,661	22.3	450.5	16.7
ARCNEH37	45	0	0.0	0.0	0.0	0	0.0	0.0	0.0
BELL 204	26	22	5.2	84.3	4.4	150,004	7.7	6,846.6	5.7
BELL 206	1,900	1,810	0.3	95.3	0.3	10,127,647	1.1	5,596.1	1.0
BELL 212	117	106	3.1	90.2	2.8	910,447	6.0	8,626.7	5.1
BELL 222	83	70	2.5	84.3	2.1	172,941	4.2	2,472.3	3.4
BELL 412	61	61	0.0	100.0	0.0	328,385	7.5	5,383.4	7.5
BELL 47	838	579	2.3	69.1	1.6	3,681,220	3.3	6,354.6	2.3
BOLKMS105	175	171	1.9	97.7	1.9	682,275	10.5	3,989.0	10.4
BOLKMS117	113	110	2.9	97.2	2.8	124,113	12.6	1,129.8	12.3
ENSTRMF28	421	330	2.2	78.5	1.7	451,611	5.8	1,371.5	5.3
H23/HTE	36	12	22.9	32.1	7.3	41,877	35.8	3,624.0	27.5

5.2 1989 ROTORCRAFT TOTAL AIRFRAME HOURS AND AVERAGE AIRFRAME HOURS
BY SDR ROTORCRAFT MANUFACTURER/MODEL GROUP

PAGE 2 OF 3

MANUFACTURER/ MODEL GROUP	ROTORCRAFT POPULATION SIZE	ESTIMATE OF NUMBER ACTIVE	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR	ESTIMATE OF TOTAL AIRFRAME HOURS	PERCENT STANDARD ERROR	ESTIMATE AVERAGE AIRFRAME HOURS	PERCENT STANDARD ERROR
H34/55	29	DIS	DIS	DIS	DIS	DIS	DIS	DIS	DIS
HILLERFH1100	64	29	20.7	45.2	9.4	80,818	26.6	2,791.4	16.6
HILLERUH12	585	373	3.0	63.8	1.9	1,741,753	5.2	4,671.5	4.3
HUGHES269	676	476	2.0	70.4	1.4	2,157,515	3.4	4,535.3	2.7
HUGHES369	600	551	1.0	91.8	0.9	2,370,203	4.8	4,304.2	4.7
HYNES B2	126	53	10.2	41.9	4.3	203,979	43.9	3,862.6	42.6
MACDOUG369	61	61	0.0	100.0	0.0	71,631	6.0	1,174.3	6.0
MILITARY204	201	142	6.3	70.8	4.5	775,646	7.7	5,447.9	4.4
MILITARY47	395	235	3.7	59.4	2.2	1,291,723	5.3	5,454.5	3.8
MODFD47	53	37	10.8	70.4	7.6	143,524	20.6	3,848.2	17.5
ORLHELH19	73	44	33.5	60.3	20.2	288,718	35.5	6,554.1	11.6
ORLHEL58	33	11	60.3	33.3	20.1	27,500	60.3	2,500.0	0.0
ROBSINR22	408	395	0.6	96.9	0.6	636,350	7.7	1,609.8	7.7
SCHWZH269	54	48	2.0	89.6	1.8	55,947	6.2	1,156.0	5.8
SKRSKYS55	34	7	55.0	20.0	11.0	41,273	55.5	6,069.5	6.8
SKRSKYS58	72	35	17.9	48.6	8.7	164,166	20.5	4,692.4	9.9
SKRSKYS58T	38	27	11.2	71.4	8.0	253,763	13.3	9,349.2	7.2
SKRSKYS61	28	14	6.7	49.6	3.3	150,953	8.5	10,869.3	5.3
SKRSKYS76	175	167	1.0	95.6	0.9	654,475	3.4	3,913.1	3.3
SNIAS 350	271	255	1.1	94.0	1.0	877,252	7.5	3,442.6	7.4
SNIAS SA318	21	0	0.0	0.0	0.0	0	0.0	0.0	0.0

5.2 1989 ROTORCRAFT TOTAL AIRFRAME HOURS AND AVERAGE AIRFRAME HOURS
BY SDR ROTORCRAFT MANUFACTURER/MODEL GROUP

PAGE 3 OF 3

MANUFACTURER/ MODEL GROUP	ROTORCRAFT POPULATION SIZE	ESTIMATE OF NUMBER ACTIVE	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR	ESTIMATE OF TOTAL AIRFRAME HOURS	PERCENT STANDARD ERROR	ESTIMATE AVERAGE AIRFRAME HOURS	PERCENT STANDARD ERROR
SNIAS SA341	29	20	15.4	68.7	10.6	59,919	20.8	3,009.4	14.0
TH55	60	42	3.8	70.1	2.6	331,409	5.6	7,874.6	4.1
TOMCAT	38	24	13.1	63.8	8.3	91,204	19.4	3,762.3	14.4
TOTAL	10,469	7,488	0.6	71.5	0.4	31,423,640	1.1	4,191.2	0.9

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

(*) THE "OTHER" CATEGORIES REPRESENT:

- OTHER 1 - MANUFACTURER BUILT - PISTON
- OTHER 2 - MANUFACTURER BUILT - TURBINE-SINGLE ENGINE
- OTHER 3 - MANUFACTURER BUILT - TURBINE-MULTI ENGINE
- OTHER 4 - AMATEUR BUILT

"DIS" INDICATES AN ESTIMATE WAS DELETED TO AVOID ANY POSSIBLE DISCLOSURE OF INDIVIDUAL RESPONSES.

CHAPTER VI

LAW ENFORCEMENT ROTORCRAFT

Some of the rotorcraft in the rotorcraft fleet are used for law enforcement activities. These activities include surveillance, instructional use, and emergency medical service--to name a few. For the purpose of this chapter, a law enforcement rotorcraft is one that was used for law enforcement 90 percent of the time or more during the year. This chapter presents the number of rotorcraft used in law enforcement activities, the total flight hours, and the primary use of law enforcement rotorcraft.

This chapter presents six tables and three figures. Tables 6.1-6.4 present the estimated number of law enforcement rotorcraft, total flight hours and average flight hours in four different ways, by: 1) aircraft type; 2) region of based rotorcraft; 3) SDR Rotorcraft Manufacturer/Model Group; and 4) state of based rotorcraft. Tables 6.5 and 6.6 present the number of law enforcement rotorcraft and total flight hours by expanded use category. Definitions of expanded use categories are listed in Appendix C.

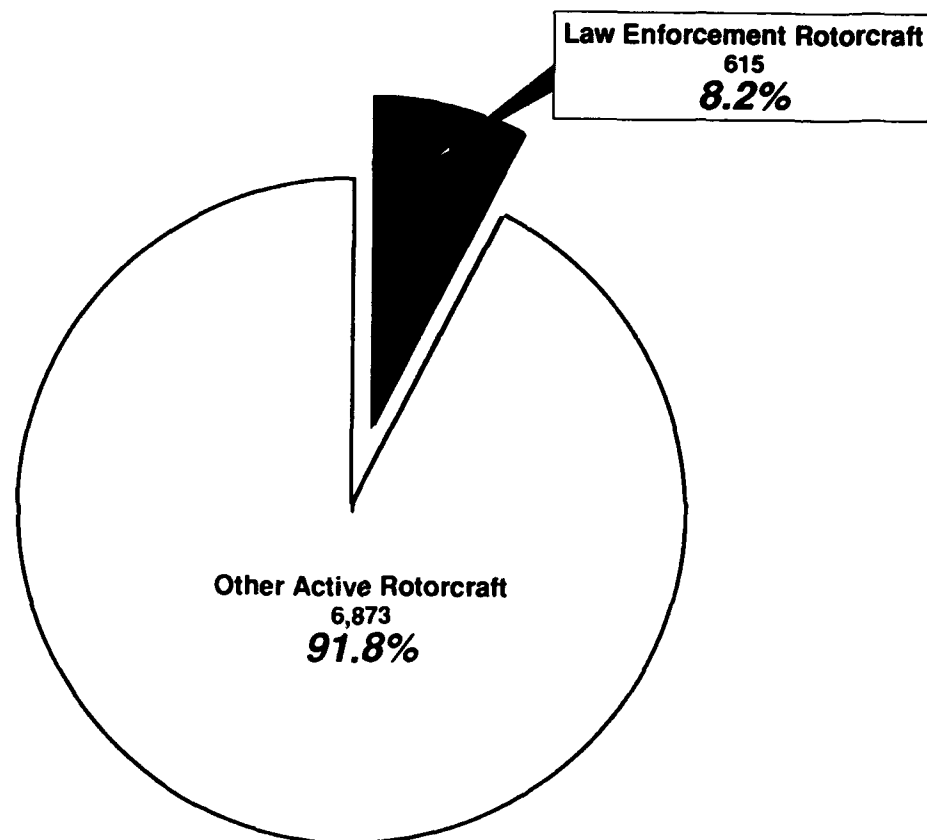
Figure 6.1 shows the number of law enforcement rotorcraft as a percent of all active rotorcraft. Figure 6.2 displays law enforcement rotorcraft total flight hours by rotorcraft type. Figure 6.3 displays two graphs--the first one shows the number of law enforcement rotorcraft in selected expanded use categories; the second graph depicts the total hours flown by law enforcement rotorcraft in selected expanded use categories.

Some key observations to be drawn from Tables 6.1-6.6 and the figures in this chapter include:

- o Approximately 615 out of 7,488 active rotorcraft are used for law enforcement purposes.
- o Law enforcement rotorcraft comprise 8.2 percent of the active rotorcraft fleet.
- o Law enforcement rotorcraft flew more than 331,000 hours, 11.7 percent of the total hours flown by rotorcraft in 1989.
- o Law enforcement rotorcraft averaged 546 hours, with a low of 314 average hours for multiengine turbine rotorcraft and a high of 609 average hours for single engine turbine rotorcraft.
- o More single engine turbine rotorcraft than any other type of rotorcraft are used for law enforcement activities, comprising 60 percent of the active law enforcement rotorcraft.
- o Aerial observation is the most frequent primary use of law enforcement rotorcraft, with 68 percent of the law enforcement rotorcraft primarily used for this purpose. The aerial observation use category accounted for more than 252,000 total flight hours or 76 percent of the total flight hours by law enforcement rotorcraft.

- o The second and third highest use categories are emergency medical service not under FAR 135, with 24,105 flight hours, and aerial application, with 13,904 flight hours.
- o The three regions with the greatest number of law enforcement rotorcraft are: Western-Pacific with 194; Southern with 141; and Eastern with 110 rotorcraft.
- o The three states with the greatest number of rotorcraft in law enforcement are: California with 149; Florida with 76; and Texas with 41.
- o The state of California alone accounted for 34 percent of the total law enforcement flight hours in 1989.

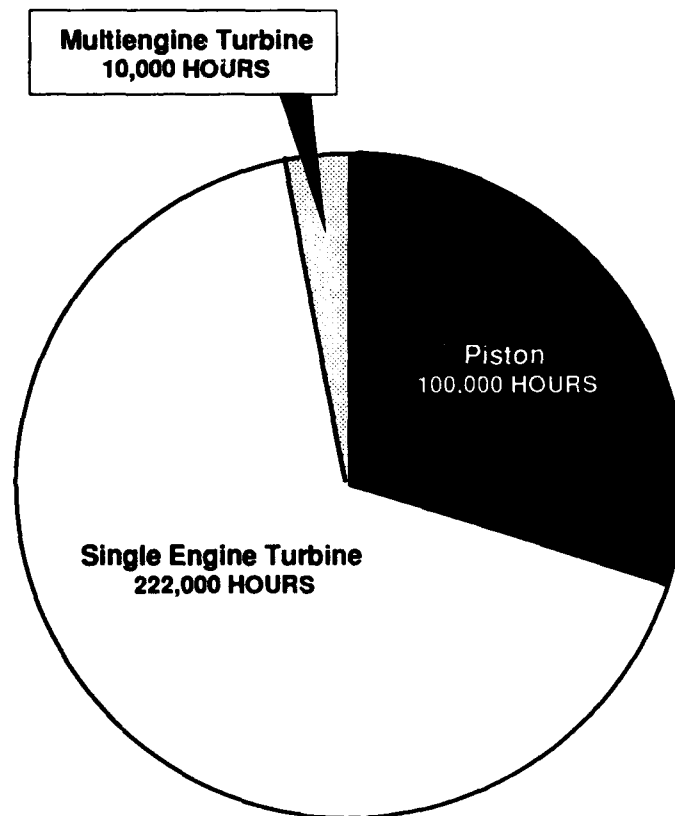
Figure 6.1
1989 LAW ENFORCEMENT ROTORCRAFT



Total Active Rotorcraft: 7,488 = 100%

SOURCE: Table 6.1

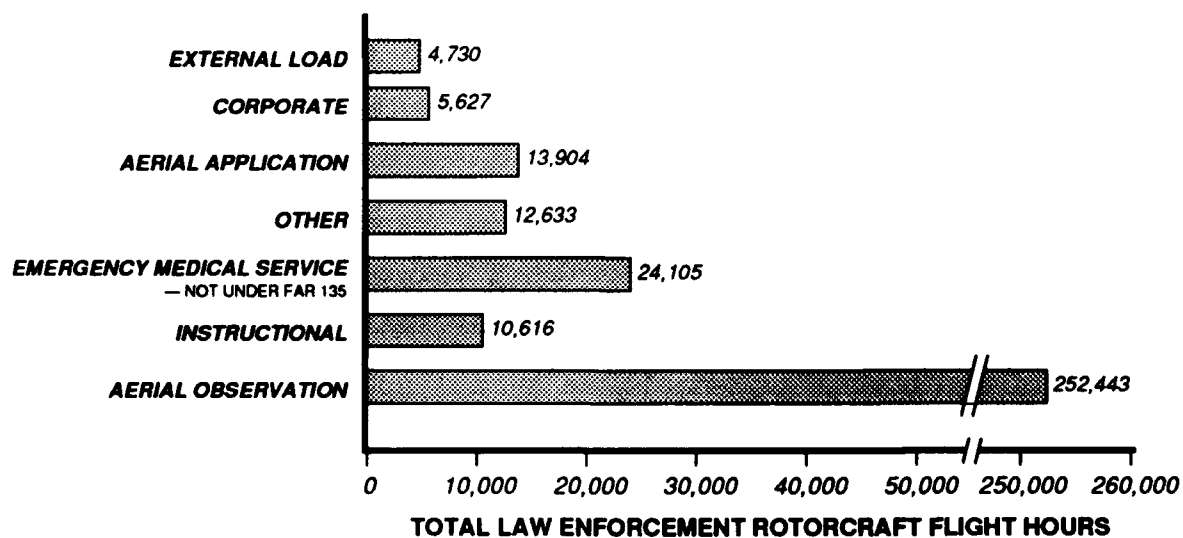
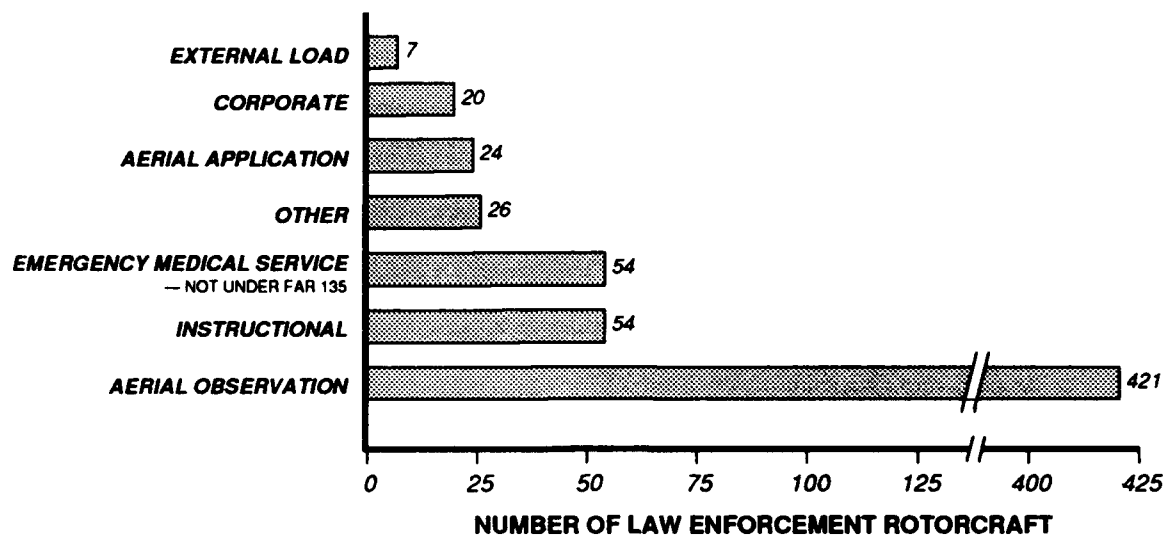
Figure 6.2
1989 LAW ENFORCEMENT ROTORCRAFT
TOTAL FLIGHT HOURS
BY ROTORCRAFT TYPE



Amateur Built Rotorcraft did not have any law enforcement flight hours.

SOURCE: Table 6.1

Figure 6.3
1989 NUMBER OF LAW ENFORCEMENT
ROTORCRAFT AND TOTAL FLIGHT HOURS
BY SELECTED PRIMARY USE CATEGORIES



SOURCE: Tables 6.5 and 6.6

6.1 1989 LAW ENFORCEMENT ROTORCRAFT, TOTAL FLIGHT HOURS AND AVERAGE FLIGHT HOURS
BY ROTORCRAFT TYPE

PAGE 1 OF 1

ROTORCRAFT TYPE	ESTIMATE OF NUMBER LAW ENFORCMT	PERCENT STANDARD ERROR	ESTIMATE OF TOTAL HOURS FLOWN	PERCENT STANDARD ERROR	ESTIMATE OF AVERAGE HOURS	PERCENT STANDARD ERROR
MANUFACTURER BUILT:						
PISTON TOTAL:	216	5.1	99,875	7.8	459.4	4.7
TURBINE: SINGLE ENGINE	367	3.8	221,765	4.7	608.8	2.8
TURBINE: MULTI - ENGINE	31	16.1	9,680	24.6	313.7	5.8
TURBINE TOTAL:	398	3.8	231,444	4.6	587.6	2.7
MANUFACTURER BUILT TOTAL:	615	3.1	331,319	4.0	545.8	2.3
AMATEUR BUILT:	0	0.0	0	0.0	0.0	0.0
TOTAL - ALL ROTORCRAFT:	615	3.1	331,319	4.0	545.8	2.3

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

LAW ENFORCEMENT ROTORCRAFT ARE ONES THAT WERE USED IN LAW ENFORCEMENT ACTIVITIES 90% OR MORE DURING THE YEAR.

6.2 1989 LAW ENFORCEMENT ROTORCRAFT, TOTAL FLIGHT HOURS AND AVERAGE FLIGHT HOURS
BY SDR ROTORCRAFT MANUFACTURER/MODEL GROUP

PAGE 1 OF 3

MANUFACTURER/ MODEL GROUP	ESTIMATE OF NUMBER LAW ENFORCEMENT	PERCENT STANDARD ERROR	ESTIMATE OF TOTAL HOURS FLOWN	PERCENT STANDARD ERROR	ESTIMATE OF AVERAGE HOURS	PERCENT STANDARD ERROR
OTHER 1 (*)	0	0.0	0	0.0	0.0	0.0
OTHER 2 (*)	21	18.5	10,354	25.1	484.5	16.9
OTHER 3 (*)	10	23.1	2,642	26.4	263.4	12.8
OTHER 4 (*)	0	0.0	0	0.0	0.0	0.0
AERORSJ2	0	0.0	0	0.0	0.0	0.0
AEROSPAS355	DIS	DIS	DIS	DIS	DIS	DIS
AEROSPAS316	0	0.0	0	0.0	0.0	0.0
AGUSTA205	0	0.0	0	0.0	0.0	0.0
AGUSTAA109	0	0.0	0	0.0	0.0	0.0
AIRSPC18	0	0.0	0	0.0	0.0	0.0
ARCNEH37	0	0.0	0	0.0	0.0	0.0
BELL 204	0	0.0	0	0.0	0.0	0.0
BELL 206	166	4.3	106,005	5.1	638.4	2.6
BELL 212	DIS	DIS	DIS	DIS	DIS	DIS
BELL 222	9	16.9	2,679	21.2	299.4	12.9
BELL 412	0	0.0	0	0.0	0.0	0.0
BELL 47	39	15.7	10,888	24.9	276.5	19.2
BOLKMS105	0	0.0	0	0.0	0.0	0.0
BOLKMS117	DIS	DIS	DIS	DIS	DIS	DIS
ENSTRMF28	19	19.9	19,675	23.9	1,025.0	12.3
H23/HTE	0	0.0	0	0.0	0.0	0.0

6.2 1989 LAW ENFORCEMENT ROTORCRAFT, TOTAL FLIGHT HOURS AND AVERAGE FLIGHT HOURS
BY SDR ROTORCRAFT MANUFACTURER/MODEL GROUP

PAGE 2 OF 3

MANUFACTURER/ MODEL GROUP	ESTIMATE OF NUMBER LAW ENFORCEMENT	PERCENT STANDARD ERROR	ESTIMATE OF TOTAL HOURS FLOWN	PERCENT STANDARD ERROR	ESTIMATE OF AVERAGE HOURS	PERCENT STANDARD ERROR
H34/55	DIS	DIS	DIS	DIS	DIS	DIS
HILLERFH1100	DIS	DIS	DIS	DIS	DIS	DIS
HILLERUH12	DIS	DIS	DIS	DIS	DIS	DIS
HUGHES269	96	7.5	54,073	10.1	561.3	6.8
HUGHES369	93	8.0	75,755	10.3	814.5	6.6
HYNES B2	0	0.0	0	0.0	0.0	0.0
MACDOUG369	22	9.1	11,439	11.3	522.2	6.7
MILITARY204	36	20.9	2,572	38.8	70.9	32.7
MILITARY47	19	18.9	3,305	24.2	173.3	15.2
MODED47	0	0.0	0	0.0	0.0	0.0
ORLHELH19	0	0.0	0	0.0	0.0	0.0
ORLHEL58	0	0.0	0	0.0	0.0	0.0
ROBSINR22	6	28.2	4,256	30.1	696.9	10.4
SCHWZH269	12	10.8	6,169	14.3	504.5	9.3
SKRSKYS55	0	0.0	0	0.0	0.0	0.0
SKRSKYS58	0	0.0	0	0.0	0.0	0.0
SKRSKYS58T	DIS	DIS	DIS	DIS	DIS	DIS
SKRSKYS61	0	0.0	0	0.0	0.0	0.0
SKRSKYS76	DIS	DIS	DIS	DIS	DIS	DIS
SNIAS 350	20	15.0	11,755	18.3	598.8	10.6
SNIAS SA318	0	0.0	0	0.0	0.0	0.0

6.2 1989 LAW ENFORCEMENT ROTORCRAFT, TOTAL FLIGHT HOURS AND AVERAGE FLIGHT HOURS
BY SDR ROTORCRAFT MANUFACTURER/MODEL GROUP

PAGE 3 OF 3

MANUFACTURER/ MODEL GROUP	ESTIMATE OF NUMBER LAW ENFORCEMENT	PERCENT STANDARD ERROR	ESTIMATE OF TOTAL HOURS FLOWN	PERCENT STANDARD ERROR	ESTIMATE OF AVERAGE HOURS	PERCENT STANDARD ERROR
SNIAS SA341	0	0.0	0	0.0	0.0	0.0
TH55	24	7.0	2,877	11.7	118.5	9.4
TOMCAT	0	0.0	0	0.0	0.0	0.0
TOTAL	615	3.1	331,319	4.0	545.8	2.3

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

(*) THE "OTHER" CATEGORIES REPRESENT:

- OTHER 1 - MANUFACTURER BUILT - PISTON
- OTHER 2 - MANUFACTURER BUILT - TURBINE-SINGLE ENGINE
- OTHER 3 - MANUFACTURER BUILT - TURBINE-MULTI ENGINE
- OTHER 4 - AMATEUR BUILT

"DIS" INDICATES AN ESTIMATE WAS DELETED TO AVOID ANY POSSIBLE DISCLOSURE OF INDIVIDUAL RESPONSES.

LAW ENFORCEMENT ROTORCRAFT ARE ONES THAT WERE USED IN LAW ENFORCEMENT ACTIVITIES 90% OR MORE DURING THE YEAR.

6.3 1989 LAW ENFORCEMENT ROTORCRAFT, TOTAL FLIGHT HOURS AND AVERAGE FLIGHT HOURS
BY REGION OF BASED ROTORCRAFT

PAGE 1 OF 1

REGION	ESTIMATE OF NUMBER LAW ENFORCEMENT	PERCENT STANDARD ERROR	ESTIMATE OF TOTAL HOURS FLOWN	PERCENT STANDARD ERROR	ESTIMATE OF AVERAGE HOURS	PERCENT STANDARD ERROR
ALASKAN	DIS	DIS	DIS	DIS	DIS	DIS
CENTRAL	21	14.3	14,155	19.5	638.3	10.4
EASTERN	110	6.4	43,025	6.4	397.1	8.3
GREAT LAKES	56	10.7	19,703	12.3	358.6	9.5
NEW ENGLAND	DIS	DIS	DIS	DIS	DIS	DIS
NORTHWEST MT.	21	19.0	4,594	24.3	223.4	16.0
SOUTHERN	141	5.7	60,927	5.9	443.9	3.8
SOUTHWESTERN	57	8.8	27,063	11.1	513.6	6.9
WESTERN-PACIFIC	194	4.6	156,071	5.9	804.1	4.6
TOTAL	615	3.1	333,543	3.4	546.4	2.3

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

"DIS" INDICATES AN ESTIMATE WAS DELETED TO AVOID ANY POSSIBLE DISCLOSURE OF INDIVIDUAL RESPONSES.

LAW ENFORCEMENT ROTORCRAFT ARE ONES THAT WERE USED IN LAW ENFORCEMENT ACTIVITIES 90% OR MORE DURING THE YEAR.

6.4 1989 LAW ENFORCEMENT ROTORCRAFT, TOTAL FLIGHT HOURS AND AVERAGE FLIGHT HOURS
BY STATE OF BASED ROTORCRAFT

PAGE 1 OF 3

STATE	ESTIMATE OF NUMBER LAW ENFORCEMENT	PERCENT STANDARD ERROR	ESTIMATE OF TOTAL HOURS FLOWN	PERCENT STANDARD ERROR	ESTIMATE OF AVERAGE HOURS	PERCENT STANDARD ERROR
ALABAMA	7	14.3	1,243	31.7	190.9	20.8
ALASKA	DIS	DIS	DIS	DIS	DIS	DIS
ARIZONA	29	13.8	18,076	14.1	622.1	6.4
ARKANSAS	DIS	DIS	DIS	DIS	DIS	DIS
CALIFORNIA	149	6.0	113,698	5.6	764.8	4.8
COLORADO	9	33.3	1,624	36.0	181.8	20.4
CONNECTICUT	DIS	DIS	DIS	DIS	DIS	DIS
DELAWARE	DIS	DIS	DIS	DIS	DIS	DIS
DIST. OF COLUMBIA	21	28.6	2,873	36.3	139.5	38.9
FLORIDA	76	7.9	39,384	7.1	527.8	5.3
GEORGIA	28	14.3	12,129	14.7	448.7	5.7
HAWAII	DIS	DIS	DIS	DIS	DIS	DIS
IDAHO	0	0.0	0	0.0	0.0	0.0
ILLINOIS	DIS	DIS	DIS	DIS	DIS	DIS
INDIANA	16	18.8	5,176	23.2	333.7	22.7
IOWA	5	40.0	3,411	35.5	667.0	4.1
KANSAS	7	28.6	5,690	36.5	853.7	26.4
KENTUCKY	DIS	DIS	DIS	DIS	DIS	DIS
LOUISIANA	7	28.6	1,618	26.1	245.8	15.5
MAINE	0	0.0	0	0.0	0.0	0.0
MARYLAND	25	12.0	12,234	12.1	501.5	6.2
MASSACHUSETTS	9	22.2	4,378	21.7	498.5	12.6
MICHIGAN	21	19.0	7,022	21.3	365.6	13.0

6.4 1989 LAW ENFORCEMENT ROTORCRAFT, TOTAL FLIGHT HOURS AND AVERAGE FLIGHT HOURS
BY STATE OF BASED ROTORCRAFT

PAGE 2 OF 3

STATE	ESTIMATE OF NUMBER LAW ENFORCEMENT	PERCENT STANDARD ERROR	ESTIMATE OF TOTAL HOURS FLOWN	PERCENT STANDARD ERROR	ESTIMATE OF AVERAGE HOURS	PERCENT STANDARD ERROR
MINNESOTA	5	40.0	916	32.6	192.6	22.5
MISSISSIPPI	12	25.0	1,428	26.6	115.1	11.2
MISSOURI	10	20.0	5,054	26.6	518.2	14.2
MONTANA	0	0.0	0	0.0	0.0	0.0
NEBRASKA	0	0.0	0	0.0	0.0	0.0
NEVADA	15	20.0	20,357	26.5	343.0	19.3
NEW HAMPSHIRE	0	0.0	0	0.0	0.0	0.0
NEW JERSEY	12	16.7	4,377	15.3	350.8	6.0
NEW MEXICO	DIS	DIS	DIS	DIS	DIS	DIS
NEW YORK	24	12.5	9,252	10.8	388.8	8.4
NORTH CAROLINA	DIS	DIS	DIS	DIS	DIS	DIS
NORTH DAKOTA	0	0.0	0	0.0	0.0	0.0
OHIO	12	16.7	5,758	24.7	482.6	17.7
OKLAHOMA	7	28.6	4,136	26.8	602.2	3.1
OREGON	DIS	DIS	DIS	DIS	DIS	DIS
PENNSYLVANIA	7	14.3	3,876	22.0	562.0	5.7
RHODE ISLAND	0	0.0	0	0.0	0.0	0.0
SOUTH CAROLINA	0	0.0	0	0.0	0.0	0.0
SOUTH DAKOTA	0	0.0	0	0.0	0.0	0.0
TENNESSEE	12	25.0	3,503	21.9	349.5	10.8
TEXAS	41	12.2	20,932	13.2	551.0	9.0
UTAH	DIS	DIS	DIS	DIS	DIS	DIS
VERMONT	0	0.0	0	0.0	0.0	0.0

6.4 1989 LAW ENFORCEMENT ROTORCRAFT, TOTAL FLIGHT HOURS AND AVERAGE FLIGHT HOURS
BY STATE OF BASED ROTORCRAFT

PAGE 3 OF 3

STATE	ESTIMATE OF NUMBER LAW ENFORCEMENT	PERCENT STANDARD ERROR	ESTIMATE OF TOTAL HOURS FLOWN	PERCENT STANDARD ERROR	ESTIMATE OF AVERAGE HOURS	PERCENT STANDARD ERROR
VIRGINIA	15	20.0	6,325	15.9	427.5	7.4
WASHINGTON	7	42.9	1,925	47.3	261.3	37.9
WEST VIRGINIA	DIS	DIS	DIS	DIS	DIS	DIS
WISCONSIN	0	0.0	0	0.0	0.0	0.0
WYOMING	0	0.0	0	0.0	0.0	0.0
PUERTO RICO	0	0.0	0	0.0	0.0	0.0
TOTAL	615	3.1	330,710	14.8	545.8	2.3

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

"DIS" INDICATES AN ESTIMATE WAS DELETED TO AVOID ANY POSSIBLE DISCLOSURE OF INDIVIDUAL RESPONSES.

LAW ENFORCEMENT ROTORCRAFT ARE ONES THAT WERE USED IN LAW ENFORCEMENT ACTIVITIES 90% OR MORE DURING THE YEAR.

6.5 1989 LAW ENFORCEMENT ROTORCRAFT,
NUMBER OF ROTORCRAFT BY
EXPANDED USE CATEGORY BY ROTORCRAFT TYPE

PAGE 1 OF 1

ROTORCRAFT TYPE	TOTAL LAW ENFORCMT	PER- SONAL	EMERG MED SVCE UNDER NOT UND FAR135 FAR135	AIR TAXI	COMMUTR CARRIER	CORP- ORATE	INSTRUC TIONAL	AERIAL APPL	AERIAL OBS	EXTNL LOAD	OTHER USE	WK NESS	BUSI- NESS	OTHER
MANUFACTURER BUILT:														
PISTON TOTAL:														
EST. NO. LAW ENFORCMT	216	0	DIS	0	0	0	DIS	21	13	167	0	0	0	10
% STD. ERROR	5.2	0.0		0.0	0.0	0.0		17.8	21.6	3.0	0.0	0.0	0.0	20.9
EST. % LAW ENFORCMT	5.5													
TURBINE: SINGLE ENGINE														
EST. NO. LAW ENFORCMT	367	0	0	37	0	0	DIS	32	DIS	DIS	DIS	DIS	DIS	16
% STD. ERROR	3.9	0.0	0.0	15.8	0.0	0.0		19.4						16.6
EST. % LAW ENFORCMT	10.2													
TURBINE: MULTI - ENGINE														
EST. NO. LAW ENFORCMT	31	0	0	17	0	0	DIS	0	DIS	DIS	DIS	DIS	DIS	0
% STD. ERROR	15.5	0.0	0.0	7.0	0.0	0.0		0.0						0.0
EST. % LAW ENFORCMT	2.9													
TURBINE TOTAL:														
EST. NO. LAW ENFORCMT	398	0	0	54	DIS	0	DIS	32	11	254	7	DIS	DIS	16
% STD. ERROR	3.8	0.0	0.0	11.0	0.0	0.0		19.4	26.5	2.4	19.4			16.6
EST. % LAW ENFORCMT	8.5													
MANUFACTURER BUILT TOTAL:														
EST. NO. LAW ENFORCMT	615	0	DIS	54	DIS	0	20	54	24	421	7	DIS	DIS	26
% STD. ERROR	3.1	0.0		11.0	0.0	0.0	14.6	13.7	16.9	1.9	19.4			13.0
EST. % LAW ENFORCMT	7.1													
AMATEUR BUILT:														
EST. NO. LAW ENFORCMT	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% STD. ERROR	0.0	0.0	0.0	0.0	0.0	0.0								
EST. % LAW ENFORCMT	0.0													
TOTAL														
EST. NO. LAW ENFORCMT	615	0	DIS	54	DIS	0	20	54	24	421	7	DIS	DIS	26
% STD. ERROR	3.1	0.0		11.0	0.0	0.0	14.6	13.7	16.9	1.9	19.4			13.0
EST. % LAW ENFORCMT	5.9													

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.
ROW SUMMATIONS MAY DIFFER FROM PRINTED TOTALS BECAUSE SOME ACTIVE ROTORCRAFT DID NOT REPORT USE.

"DIS" INDICATES AN ESTIMATE WAS DELETED TO AVOID ANY POSSIBLE DISCLOSURE OF INDIVIDUAL RESPONSES.

LAW ENFORCEMENT ROTORCRAFT ARE ONES THAT WERE USED IN LAW ENFORCEMENT ACTIVITIES 90% OR MORE DURING THE YEAR.

6.6 1989 LAW ENFORCEMENT ROTORCRAFT
FLIGHT HOURS BY
EXPANDED USE CATEGORY BY ROTORCRAFT TYPE

PAGE 1 OF 1

PRIMARY USE

ROTORCRAFT TYPE	PER- SONAL	EMERG UNDER FAR 135	MED SVCE NOT UND FAR 135	AIR TAXI	COMPUTER CARRIER	CORP- ORATE	INSTRUC- TIONAL	AERIAL APPL	AERIAL OBS	EXTRNL LOAD	OTHR USE	WK DIS	BUSI- NESS	OTHER	TOTAL
MANUFACTURER BUILT:															
PISTON TOTAL:															
EST. TOT. HOURS	0	DIS	0	0	0	DIS	3,446	7,940	79,846	0	0	0	0	5,196	99,875
% STD. ERROR	0.0	0.0	0.0	0.0	0.0	0.0	24.5	21.6	6.1	0.0	0.0	0.0	0.0	23.9	7.9
TURBINE: SINGLE ENGINE															
EST. TOT. HOURS	0	0	19,953	DIS	0	DIS	7,170	DIS	DIS	DIS	DIS	DIS	DIS	7,437	221,765
% STD. ERROR	0.0	0.0	16.6	0.0	0.0	0.0	21.7	0.0	0.0	0.0	0.0	0.0	0.0	18.1	4.6
TURBINE: MULTI - ENGINE															
EST. TOT. HOURS	0	0	4,152	0	0	DIS	0	DIS	DIS	DIS	DIS	DIS	DIS	0	9,680
% STD. ERROR	0.0	0.0	12.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	26.3
TURBINE TOTAL:															
EST. TOT. HOURS	0	0	24,105	DIS	0	DIS	7,170	5,964	172,597	4,730	DIS	DIS	DIS	7,437	231,444
% STD. ERROR	0.0	0.0	11.9	0.0	0.0	0.0	21.7	32.6	3.9	37.1	0.0	0.0	0.0	18.1	4.5
MANUFACTURER BUILT TOTAL:															
EST. TOT. HOURS	0	DIS	24,105	DIS	0	5,627	10,616	13,904	252,443	4,730	DIS	DIS	DIS	12,633	331,319
% STD. ERROR	0.0	0.0	11.9	0.0	0.0	15.4	16.1	18.9	3.3	37.1	0.0	0.0	0.0	14.4	4.0
AMATEUR BUILT:															
EST. TOT. HOURS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% STD. ERROR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL															
EST. TOT. HOURS	0	DIS	24,105	DIS	0	5,627	10,616	13,904	252,443	4,730	DIS	DIS	DIS	12,633	331,319
% STD. ERROR	0.0	0.0	11.9	0.0	0.0	15.4	16.1	18.9	3.3	37.1	0.0	0.0	0.0	14.1	4.0

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.
ROW SUMMATIONS MAY DIFFER FROM PRINTED TOTALS BECAUSE SOME ACTIVE ROTORCRAFT DID NOT REPORT USE.

"DIS" INDICATES AN ESTIMATE WAS DELETED TO AVOID ANY POSSIBLE DISCLOSURE OF INDIVIDUAL RESPONSES.

LAW ENFORCEMENT ROTORCRAFT ARE ONES THAT WERE USED IN LAW ENFORCEMENT ACTIVITIES 90% OR MORE DURING THE YEAR.

CHAPTER VII

PUBLIC USE ROTORCRAFT

Some of the rotorcraft in the rotorcraft fleet are used by local, state and Federal government agencies on behalf of their citizens for public use activities. These activities include survey work, aerial observation, and aerial application--to name a few. For the purpose of this chapter, a public use rotorcraft is one that was used for public use 90 percent of the time or more during the year. This chapter presents the number of rotorcraft used in public use activities, the total flight hours, and the primary use of public use rotorcraft.

This chapter presents six tables and three figures. Tables 7.1-7.4 present the estimated number of public use rotorcraft, total flight hours and average flight hours in four different ways, by: 1) aircraft type; 2) region of based rotorcraft; 3) SDR Rotorcraft Manufacturer/Model Group; and 4) state of based rotorcraft. Tables 7.5 and 7.6 present the number of public use rotorcraft and total flight hours by expanded use category. Definitions of expanded use categories are listed in Appendix C.

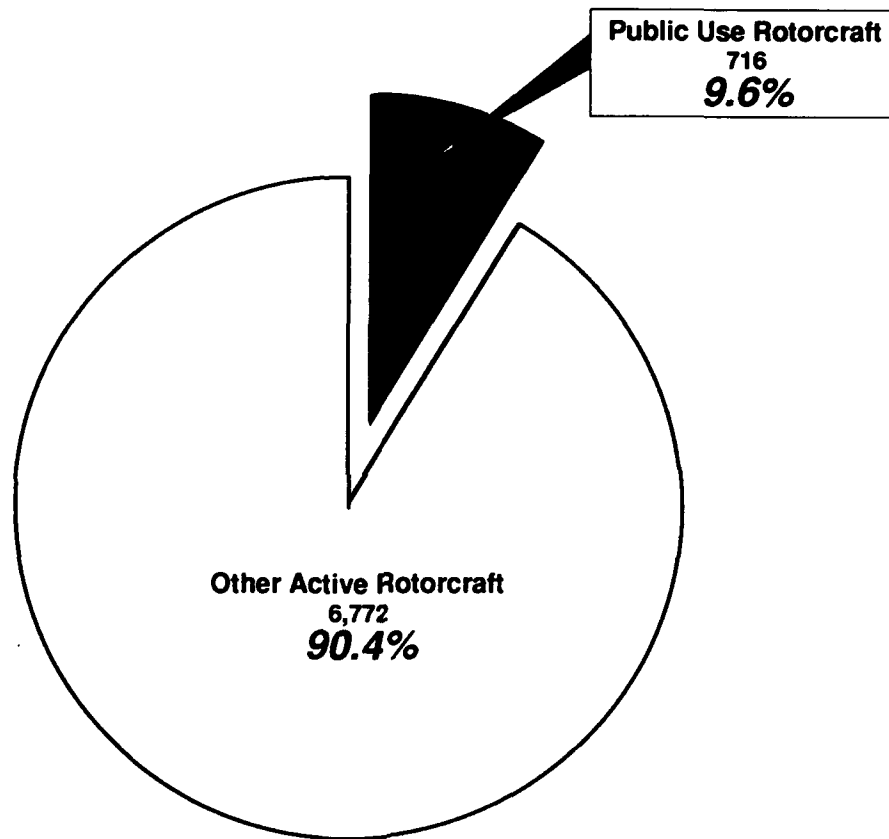
Figure 7.1 shows the number of public use rotorcraft as a percent of all active rotorcraft. Figure 7.2 displays public use rotorcraft total flight hours by rotorcraft type. Figure 7.3 displays two graphs--the first one shows the number of public use rotorcraft in selected expanded use categories; the second graph depicts the total hours flown by public use rotorcraft in selected expanded use categories.

Some key observations to be drawn from Tables 7.1-7.6 and the figures in this chapter include:

- o Approximately 716 out of 7,488 active rotorcraft are used for public use purposes.
- o Public use rotorcraft comprise 9.6 percent of the active rotorcraft fleet.
- o Public use rotorcraft flew more than 293,000 hours, 10.4 percent of the total hours flown by rotorcraft in 1989.
- o Overall, public use rotorcraft averaged 417 flight hours with single engine turbine rotorcraft experiencing 466 average flight hours.
- o As with law enforcement rotorcraft, single engine turbine rotorcraft are also the most frequently used public use rotorcraft type, comprising 60 percent of the public use rotorcraft.
- o Aerial observation is the most frequent primary use of public use rotorcraft, with 50 percent of the public use rotorcraft primarily used for this purpose. The aerial observation use category also accounted for the most total flight hours, almost 188,000 hours or 64 percent of the total hours flown by public use rotorcraft.

- o The second and third highest use categories are aerial application with 21,990 flight hours and emergency medical service not under FAR 135, with 20,507 flight hours.
- o The three regions with the greatest number of public use rotorcraft are: Western-Pacific with 220; Southern with 158; and Eastern with 96 rotorcraft.
- o The three states with the greatest number of public use rotorcraft are: California with 155; Florida with 86; and Texas with 40.
- o The state of California alone accounted for 30 percent of the total public use flight hours in 1989.

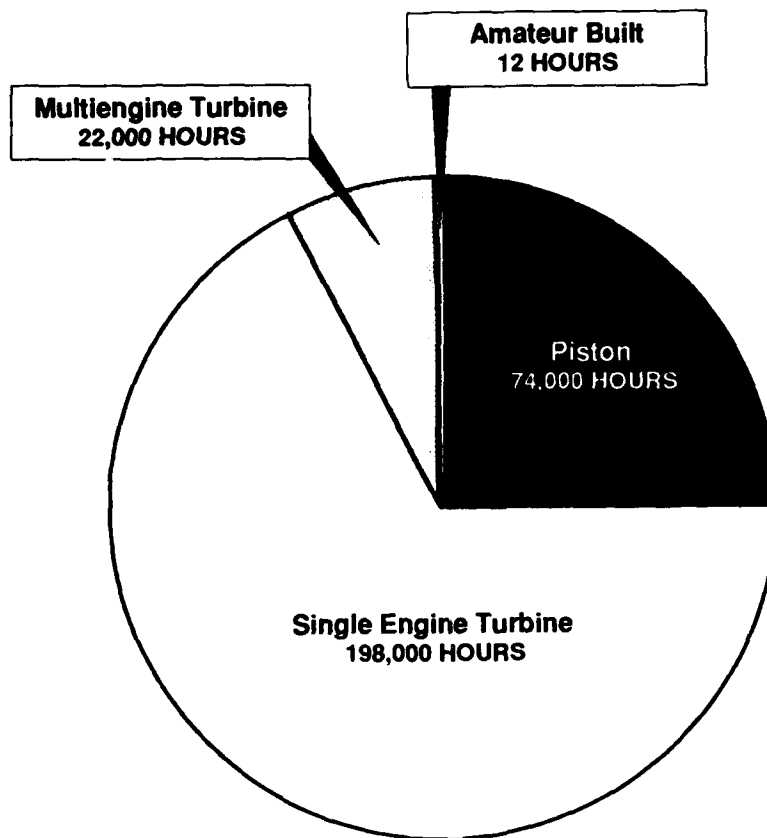
Figure 7.1
1989 PUBLIC USE ROTORCRAFT



Total Active Rotorcraft: 7,488 = 100%

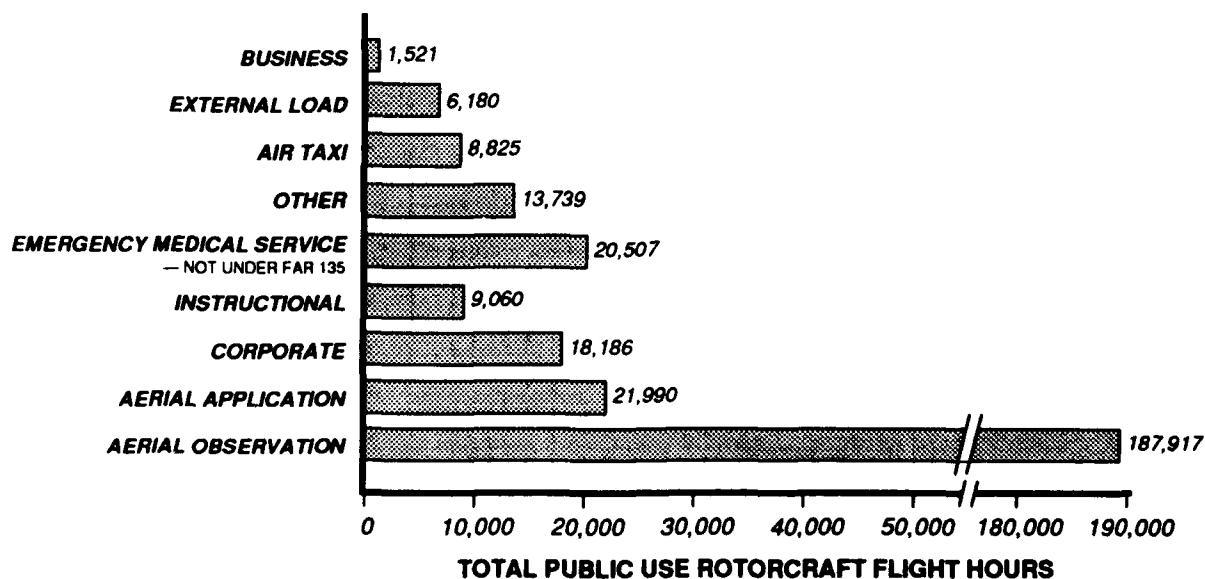
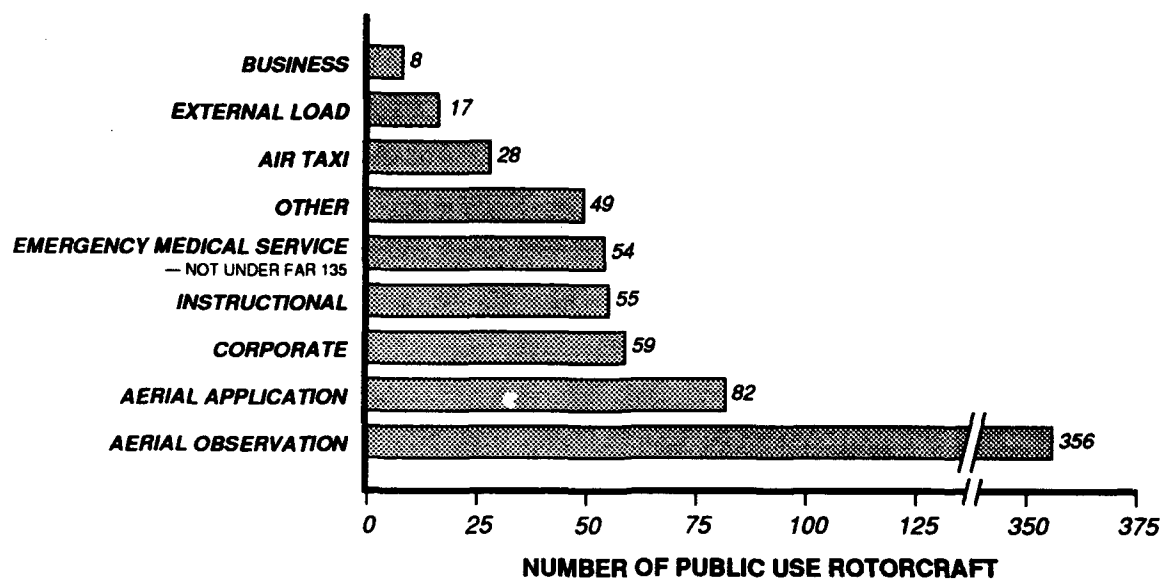
SOURCE: Table 7.1

Figure 7.2
1989 PUBLIC USE ROTORCRAFT
TOTAL FLIGHT HOURS
BY ROTORCRAFT TYPE



SOURCE: Table 7.1

Figure 7.3
1989 NUMBER OF PUBLIC USE
ROTORCRAFT AND TOTAL FLIGHT HOURS
BY SELECTED PRIMARY USE CATEGORIES



SOURCE: Tables 7.5 and 7.6

7.1 1989 PUBLIC USE ROTORCRAFT, TOTAL FLIGHT HOURS AND AVERAGE FLIGHT HOURS
BY ROTORCRAFT TYPE

PAGE 1 OF 1

ROTORCRAFT TYPE	ESTIMATE OF NUMBER PUBLIC USE	PERCENT STANDARD ERROR	ESTIMATE OF TOTAL HOURS FLOWN	PERCENT STANDARD ERROR	ESTIMATE OF AVERAGE HOURS	PERCENT STANDARD ERROR
MANUFACTURER BUILT:						
PISTON TOTAL:	225	5.8	73,612	7.9	326.0	4.5
TURBINE: SINGLE ENGINE	431	3.7	198,141	4.9	466.1	3.2
TURBINE: MULTI - ENGINE	58	13.8	22,051	14.7	378.8	4.5
TURBINE TOTAL:	489	3.7	220,193	4.6	457.8	2.9
MANUFACTURER BUILT TOTAL:	714	3.1	293,805	4.0	418.4	2.5
AMATEUR BUILT:	2	100.0	12	66.4	5.0	0.0
TOTAL - ALL ROTORCRAFT:	716	3.1	293,817	4.0	417.0	2.5

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

PUBLIC USE ROTORCRAFT ARE ONES THAT WERE USED IN PUBLIC USE ACTIVITIES 90% OR MORE DURING THE YEAR.

7.2 1989 PUBLIC USE ROTORCRAFT, TOTAL FLIGHT HOURS AND AVERAGE FLIGHT HOURS
BY SDR ROTORCRAFT MANUFACTURER/MODEL GROUP

PAGE 1 OF 3

MANUFACTURER/ MODEL GROUP	ESTIMATE OF NUMBER PUBLIC USE	PERCENT STANDARD ERROR	ESTIMATE OF TOTAL HOURS FLOWN	PERCENT STANDARD ERROR	ESTIMATE OF AVERAGE HOURS	PERCENT STANDARD ERROR
OTHER 1 (*)	DIS	DIS	DIS	DIS	DIS	DIS
OTHER 2 (*)	24	17.3	12,836	21.3	537.1	12.5
OTHER 3 (*)	6	29.8	2,549	29.9	410.6	2.4
OTHER 4 (*)	DIS	DIS	DIS	DIS	DIS	DIS
AERORSJ2	0	0.0	0	0.0	0.0	0.0
AEROSPAS355	DIS	DIS	DIS	DIS	DIS	DIS
AEROSPSA316	DIS	DIS	DIS	DIS	DIS	DIS
AGUSTA205	12	18.9	4,618	21.8	386.8	10.9
AGUSTAA109	0	0.0	0	0.0	0.0	0.0
AIRSPC18	0	0.0	0	0.0	0.0	0.0
ARCRNEH37	0	0.0	0	0.0	0.0	0.0
BELL 204	7	19.7	1,631	23.5	233.1	12.8
BELL 206	170	4.3	86,153	5.3	505.7	3.1
BELL 212	12	27.9	5,193	31.9	443.9	15.4
BELL 222	11	15.0	3,397	18.4	308.0	10.8
BELL 412	5	36.3	1,746	36.7	353.0	4.9
BELL 47	58	12.8	9,784	17.6	167.4	12.2
BOLKMS105	7	61.2	2,028	61.4	286.4	5.1
BOLKMS117	6	72.4	2,797	73.5	465.5	13.0
ENSTRMF28	12	24.7	11,199	27.7	834.5	12.9
H23/HTE	0	0.0	0	0.0	0.0	0.0

7.2 1989 PUBLIC USE ROTORCRAFT, TOTAL FLIGHT HOURS AND AVERAGE FLIGHT HOURS
BY SDR ROTORCRAFT MANUFACTURER/MODEL GROUP

PAGE 2 OF 3

MANUFACTURER/ MODEL GROUP	ESTIMATE OF NUMBER PUBLIC USE	PERCENT STANDARD ERROR	ESTIMATE OF TOTAL HOURS FLOWN	PERCENT STANDARD ERROR	ESTIMATE OF AVERAGE HOURS	PERCENT STANDARD ERROR
H34/55	DIS	DIS	DIS	DIS	DIS	DIS
HILLERFH1100	DIS	DIS	DIS	DIS	DIS	DIS
HILLERUH12	27	17.6	3,152	21.9	116.3	11.8
HUGHES269	75	8.7	39,390	11.4	524.0	7.4
HUGHES369	95	7.9	66,407	11.1	701.8	7.8
HYNES B2	0	0.0	0	0.0	0.0	0.0
MACDOUG369	7	19.3	2,463	22.9	363.3	12.3
MILITARY204	73	13.0	7,604	20.9	104.5	16.3
MILITARY47	30	17.0	3,727	22.0	121.0	11.9
MODFD47	0	0.0	0	0.0	0.0	0.0
ORLHELH19	0	0.0	0	0.0	0.0	0.0
ORLHEL58	0	0.0	0	0.0	0.0	0.0
ROBSINR22	DIS	DIS	DIS	DIS	DIS	DIS
SCHWZH269	11	11.4	4,946	15.0	441.3	9.7
SKRSKYS55	0	0.0	0	0.0	0.0	0.0
SKRSKYS58	0	0.0	0	0.0	0.0	0.0
SKRSKYS58T	DIS	DIS	DIS	DIS	DIS	DIS
SKRSKYS61	0	0.0	0	0.0	0.0	0.0
SKRSKYS76	7	22.1	2,433	22.7	350.0	5.4
SNIAS 350	22	13.9	10,730	15.6	477.2	7.0
SNIAS SA318	0	0.0	0	0.0	0.0	0.0

7.2 1989 PUBLIC USE ROTORCRAFT, TOTAL FLIGHT HOURS AND AVERAGE FLIGHT HOURS
BY SDR ROTORCRAFT MANUFACTURER/MODEL GROUP

PAGE 3 OF 3

MANUFACTURER/ MODEL GROUP	ESTIMATE OF NUMBER PUBLIC USE	PERCENT STANDARD ERROR	ESTIMATE OF TOTAL HOURS FLOWN	PERCENT STANDARD ERROR	ESTIMATE OF AVERAGE HOURS	PERCENT STANDARD ERROR
SNIAS SA341	0	0.0	0	0.0	0.0	0.0
TH55	20	8.1	2,516	13.3	124.5	10.6
TOMCAT	0	0.0	0	0.0	0.0	0.0
TOTAL	716	3.1	293,817	4.0	417.0	2.5

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

(*) THE "OTHER" CATEGORIES REPRESENT:

- OTHER 1 - MANUFACTURER BUILT - PISTON
- OTHER 2 - MANUFACTURER BUILT - TURBINE-SINGLE ENGINE
- OTHER 3 - MANUFACTURER BUILT - TURBINE-MULTI ENGINE
- OTHER 4 - AMATEUR BUILT

"Dis" INDICATES AN ESTIMATE WAS DELETED TO AVOID ANY POSSIBLE DISCLOSURE OF INDIVIDUAL RESPONSES.

PUBLIC USE ROTORCRAFT ARE ONES THAT WERE USED IN PUBLIC USE ACTIVITIES 90% OR MORE DURING THE YEAR.

7.3 1989 PUBLIC USE ROTORCRAFT, TOTAL FLIGHT HOURS AND AVERAGE FLIGHT HOURS
BY REGION OF BASED ROTORCRAFT

PAGE 1 OF 1

REGION	ESTIMATE OF NUMBER PUBLIC USE	PERCENT STANDARD ERROR	ESTIMATE OF TOTAL HOURS FLOWN	PERCENT STANDARD ERROR	ESTIMATE OF AVERAGE HOURS	PERCENT STANDARD ERROR
ALASKAN	18	22.2	5,706	20.4	377.7	6.2
CENTRAL	20	15.0	11,291	22.3	544.6	13.7
EASTERN	96	8.3	28,791	8.0	309.3	9.7
GREAT LAKES	65	9.2	16,982	12.8	284.3	8.3
NEW ENGLAND	15	13.3	5,054	20.2	424.4	13.2
NORTHWEST MT.	71	11.3	16,301	10.8	245.7	8.2
SOUTHERN	158	6.3	46,143	6.7	308.3	5.1
SOUTHWESTERN	54	9.3	23,183	10.6	477.0	7.2
WESTERN-PACIFIC	220	4.5	130,669	6.1	627.5	5.2
TOTAL	716	3.1	293,778	3.4	419.9	2.5

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

PUBLIC USE ROTORCRAFT ARE ONES THAT WERE USED IN PUBLIC USE ACTIVITIES 90% OR MORE DURING THE YEAR.

7.4 1989 PUBLIC USE ROTORCRAFT, TOTAL FLIGHT HOURS AND AVERAGE FLIGHT HOURS
BY STATE OF BASED ROTORCRAFT

PAGE 1 OF 3

STATE	ESTIMATE OF NUMBER PUBLIC USE	PERCENT STANDARD ERROR	ESTIMATE OF TOTAL HOURS FLOWN	PERCENT STANDARD ERROR	ESTIMATE OF AVERAGE HOURS	PERCENT STANDARD ERROR
ALABAMA	8	25.0	1,664	26.6	211.4	14.2
ALASKA	18	22.2	5,706	20.4	377.7	6.2
ARIZONA	34	14.7	19,689	13.4	575.3	6.9
ARKANSAS	DIS	DIS	DIS	DIS	DIS	DIS
CALIFORNIA	155	5.8	84,577	5.7	580.0	5.1
COLORADO	8	37.5	1,807	28.7	218.5	19.3
CONNECTICUT	DIS	DIS	DIS	DIS	DIS	DIS
DELAWARE	DIS	DIS	DIS	DIS	DIS	DIS
DIST. OF COLUMBIA	19	31.6	1,804	48.8	102.1	43.8
FLORIDA	86	9.3	30,352	8.5	349.4	7.5
GEORGIA	16	18.8	4,338	20.7	280.9	9.8
HAWAII	5	40.0	4,831	54.6	63.7	35.1
IDAHO	DIS	DIS	DIS	DIS	DIS	DIS
ILLINOIS	11	18.2	3,516	19.4	346.8	10.8
INDIANA	5	40.0	772	51.8	168.8	22.5
IOWA	8	25.0	4,318	30.3	556.3	11.5
KANSAS	7	28.6	5,690	37.0	853.7	26.4
KENTUCKY	DIS	DIS	DIS	DIS	DIS	DIS
LOUISIANA	5	20.0	2,062	25.4	395.0	3.3
MAINE	0	0.0	0	0.0	0.0	0.0
MARYLAND	8	25.0	3,658	22.7	490.6	12.3
MASSACHUSETTS	9	22.2	4,614	21.8	498.5	12.6
MICHIGAN	21	19.0	7,243	21.5	365.6	13.0

7.4 1989 PUBLIC USE ROTORCRAFT, TOTAL FLIGHT HOURS AND AVERAGE FLIGHT HOURS
BY STATE OF BASED ROTORCRAFT

PAGE 2 OF 3

STATE	ESTIMATE OF NUMBER PUBLIC USE	PERCENT STANDARD ERROR	ESTIMATE OF TOTAL HOURS FLOWN	PERCENT STANDARD ERROR	ESTIMATE OF AVERAGE HOURS	PERCENT STANDARD ERROR
MINNESOTA	7	28.6	1,187	25.9	170.0	17.3
MISSISSIPPI	12	25.0	2,121	22.5	173.0	10.3
MISSOURI	5	40.0	1,283	34.6	248.1	17.2
MONTANA	19	26.3	2,640	25.9	163.0	12.2
NEBRASKA	0	0.0	0	0.0	0.0	0.0
NEVADA	26	15.4	21,572	23.6	881.8	25.1
NEW HAMPSHIRE	0	0.0	0	0.0	0.0	0.0
NEW JERSEY	27	11.1	6,919	11.9	257.1	7.0
NEW MEXICO	DIS	DIS	DIS	DIS	DIS	DIS
NEW YORK	21	14.3	7,007	15.3	355.4	10.3
NORTH CAROLINA	6	50.0	1,643	33.9	267.5	24.9
NORTH DAKOTA	DIS	DIS	DIS	DIS	DIS	DIS
OHIO	16	18.8	3,262	37.3	231.2	27.4
OKLAHOMA	5	40.0	3,236	30.7	640.0	2.4
OREGON	18	22.2	5,237	18.4	325.7	9.9
PENNSYLVANIA	DIS	DIS	DIS	DIS	DIS	DIS
RHODE ISLAND	DIS	DIS	DIS	DIS	DIS	DIS
SOUTH CAROLINA	14	14.3	1,161	37.4	140.5	30.0
SOUTH DAKOTA	DIS	DIS	DIS	DIS	DIS	DIS
TENNESSEE	12	25.0	3,568	22.0	349.5	10.8
TEXAS	40	12.5	17,507	12.5	470.8	9.7
UTAH	8	37.5	1,448	39.3	208.4	19.9
VERMONT	0	0.0	0	0.0	0.0	0.0

7.4 1989 PUBLIC USE ROTORCRAFT, TOTAL FLIGHT HOURS AND AVERAGE FLIGHT HOURS
BY STATE OF BASED ROTORCRAFT

PAGE 3 OF 3

STATE	ESTIMATE OF NUMBER PUBLIC USE	PERCENT STANDARD ERROR	ESTIMATE OF TOTAL HOURS FLOWN	PERCENT STANDARD ERROR	ESTIMATE OF AVERAGE HOURS	PERCENT STANDARD ERROR
VIRGINIA	15	26.7	5,593	20.3	385.3	10.6
WASHINGTON	15	26.7	4,109	24.9	267.4	18.1
WEST VIRGINIA	DIS	DIS	DIS	DIS	DIS	DIS
WISCONSIN	DIS	DIS	DIS	DIS	DIS	DIS
WYOMING	0	0.0	0	0.0	0.0	0.0
PUERTO RICO	0	0.0	0	0.0	0.0	0.0
TOTAL	716	3.1	284,123	16.6	417.0	2.5

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

"DIS" INDICATES AN ESTIMATE WAS DELETED TO AVOID ANY POSSIBLE DISCLOSURE OF INDIVIDUAL RESPONSES.

PUBLIC USE ROTORCRAFT ARE ONES THAT WERE USED IN PUBLIC USE ACTIVITIES 90% OR MORE DURING THE YEAR.

7.5 1989 PUBLIC USE ROTORCRAFT,
NUMBER OF ROTORCRAFT BY
EXPANDED USE CATEGORY BY Rotorcraft Type

PAGE 1 OF 1

ROTORCRAFT TYPE	TOTAL LAW ENFORCMT	PER- SONAL	EMERG MED SVCE UNDER NOT UND FAR135 FAR135	AIR COMMUTR CORP- TAXI CARRIER ORATE TIONAL	INSTRUC AERIAL APPL OBS	EXTNL LOAD	OTHR WK BUSI- USE NESS	OTHER
MANUFACTURER BUILT:								
PISTON TOTAL:								
EST. NO. PUBLIC USE	225	0	DIS	0	15	0	DIS	0
& STD. ERROR	5.6	0.0	0.0	25.6	15.1	13.3	0.0	0.0
EST. % PUBLIC USE	5.7							20.0
TURBINE: SINGLE ENGINE								
EST. NO. PUBLIC USE	431	0	DIS	38	27	223	DIS	DIS
& STD. ERROR	3.7	0.0	0.0	14.0	23.5	3.3		
EST. % PUBLIC USE	12.0							
TURBINE: MULTI - ENGINE								
EST. NO. PUBLIC USE	58	0	DIS	16	6	12	DIS	DIS
& STD. ERROR	13.5	0.0	0.0	13.4	31.2	20.6		
EST. % PUBLIC USE	5.4							
TURBINE TOTAL:								
EST. NO. PUBLIC USE	489	0	DIS	54	14	235	DIS	DIS
& STD. ERROR	3.7	0.0	0.0	10.6	18.5	3.3		
EST. % PUBLIC USE	10.5							
MANUFACTURER BUILT TOTAL:								
EST. NO. PUBLIC USE	714	0	DIS	54	28	356	DIS	DIS
& STD. ERROR	3.1	0.0	0.0	10.6	16.0	2.8		
EST. % PUBLIC USE	8.3							
AMATEUR BUILT:								
EST. NO. PUBLIC USE	DIS	0	DIS	0	0	0	DIS	DIS
& STD. ERROR	DIS	0.0	0.0	0.0	0.0	0.0		
EST. % PUBLIC USE								
TOTAL								
EST. NO. PUBLIC USE	716	0	DIS	54	28	356	DIS	DIS
& STD. ERROR	3.1	0.0	0.0	10.6	16.0	2.8		
EST. % PUBLIC USE	6.9							

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.
ROW SUMMATIONS MAY DIFFER FROM PRINTED TOTALS BECAUSE SOME ACTIVE ROTORCRAFT DID NOT REPORT USE.

"DIS" INDICATES AN ESTIMATE WAS DELETED TO AVOID ANY POSSIBLE DISCLOSURE OF INDIVIDUAL RESPONSES.

PUBLIC USE ROTORCRAFT ARE ONES THAT WERE USED FOR PUBLIC USE ACTIVITIES 90% OR MORE DURING THE YEAR.

7.6 1989 PUBLIC USE ROTORCRAFT
FLIGHT HOURS BY
EXPANDED USE CATEGORY BY ROTORCRAFT TYPE

PAGE 1 OF 1

PRIMARY USE

ROTORCRAFT TYPE	PER- SONAL	EMERG MED SVCE		AIR TAXI	COMMUTER CARRIER	CORP- ORATE	INSTRUC- TIONAL	AERIAL APPL	AERIAL OBS	EXTRNL LOAD	OTHR WK USE	BUSI- NESS	OTHER	TOTAL
		UNDER FAR 135	NOT UND FAR 135											
MANUFACTURER BUILT:														
PISTON TOTAL:														
EST. TOT. HOURS	0	DIS	0	3,874	0	DIS	4,568	10,995	45,816	0	DIS	0	5,490	73,612
% STD. ERROR	0.0		0.0	29.0	0.0		21.6	13.7	8.1	0.0		0.0	21.7	8.2
TURBINE: SINGLE ENGINE														
EST. TOT. HOURS	0	DIS	15,305	2,696	0	DIS	4,492	DIS	137,988	DIS	DIS	DIS	DIS	198,141
% STD. ERROR	0.0		15.2	22.7	0.0		25.4		5.1					4.8
TURBINE: MULTI - ENGINE														
EST. TOT. HOURS	0	0	5,203	2,255	0	DIS	0	DIS	4,113	DIS	DIS	DIS	DIS	22,051
% STD. ERROR	0.0	0.0	18.2	31.7	0.0		0.0		21.0					15.8
TURBINE TOTAL:														
EST. TOT. HOURS	0	DIS	20,507	4,951	0	DIS	4,492	10,995	142,101	6,180	DIS	1,521	DIS	220,193
% STD. ERROR	0.0		12.1	18.8	0.0		25.4	17.7	5.1	27.3		48.5		4.6
MANUFACTURER BUILT TOTAL:														
EST. TOT. HOURS	0	DIS	20,507	8,825	0	18,186	9,060	21,990	187,917	6,180	DIS	1,521	DIS	293,805
% STD. ERROR	0.0		12.1	17.2	0.0	11.1	16.6	11.3	4.3	27.3		48.5		4.0
AMATEUR BUILT:														
EST. TOT. HOURS	0	0	0	0	0	0	0	0	0	0	DIS	0	DIS	DIS
% STD. ERROR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0		
TOTAL														
EST. TOT. HOURS	0	DIS	20,507	8,825	0	18,186	9,060	21,990	187,917	6,180	DIS	1,521	13,739	293,817
% STD. ERROR	0.0		12.1	17.2	0.0	11.1	16.6	11.3	4.3	27.3		48.5	12.5	4.0

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.
ROW SUMMATIONS MAY DIFFER FROM PRINTED TOTALS BECAUSE SOME ACTIVE ROTORCRAFT DID NOT REPORT USE.

"DIS" INDICATES AN ESTIMATE WAS DELETED TO AVOID ANY POSSIBLE DISCLOSURE OF INDIVIDUAL RESPONSES.

PUBLIC USE ROTORCRAFT ARE ONES THAT WERE USED FOR PUBLIC USE ACTIVITIES 90% OR MORE DURING THE YEAR.

APPENDIX A

METHODOLOGY FOR THE 1989 ROTORCRAFT ACTIVITY SURVEY

1. OVERVIEW

1.1 Purpose and Background

The purpose of the Rotorcraft Activity Survey is to provide the Federal Aviation Administration (FAA) with information on the activity of the rotorcraft fleet. The information obtained from the survey enables the FAA to monitor the rotorcraft fleet so that the FAA can, among other activities, anticipate and meet demand for National Airspace System (NAS) facilities and services, assess the impact of regulatory changes on the rotorcraft fleet, and implement measures to assure the safe operation in the airspace of all aircraft.

The 1989 Rotorcraft Activity Survey is the first ever attempted census of the general aviation rotorcraft population conducted by the FAA. The census was initiated in order to address industry concerns of bias in rotorcraft statistics which were thought to stem from sample design and response problems. FAA also needed additional information about rotorcraft not currently collected. FAA Form 1800-55 was the questionnaire used for data collection (see Figure A.1).

2. COVERAGE

2.1 Rotorcraft

The Rotorcraft Activity Survey covers all rotorcraft registered in the United States as of December 31, 1989. The term, "rotorcraft," used in this survey refers to aircraft that use rotating wings (blades) to move through the air. In this report, rotorcraft are considered in two aircraft groups, manufacturer built and amateur built. The manufacturer built rotorcraft are further divided into piston, and single engine and multiengine turbine rotorcraft.

Certain rotorcraft have been excluded from the survey. This group consists of rotorcraft registered to dealers, rotorcraft in the process of being sold or with registration pending, and rotorcraft for which not enough information was available to categorize them properly for sampling purposes.

Rotorcraft are used for a variety of purposes such as air taxi, corporate/business, personal, recreational, instructional, and emergency medical service to name a few. Rotorcraft range in complexity from simple, amateur built rotorcraft to the more sophisticated manufacturer built multiengine turbine rotorcraft.

2.2 Geographic

The rotorcraft survey conducted by the FAA covers rotorcraft registered with the United States Aircraft Registry as of December 31, 1989. Over 99 percent of these aircraft are registered to owners living in the 50 states; Washington, D.C.; Puerto Rico; and other U.S. territories.¹

¹Source: FAA Aircraft Registration Master File as of December 31, 1989.

Form Approved OMB NO. 2120-0541

FAA Form 1000-55 (1-00)

2.3 Content

The questionnaire, FAA Form 1800-55 shown previously in Figure A.1, requests the rotorcraft owner/operator to provide the following information on the aircraft's characteristics and uses for various periods:

- 1) hours by use and the number of landings for the entire calendar year, 1989; and
- 2) total airframe hours and the aircraft's base location as of December 31, 1989.

3. **METHODOLOGY**

The rotorcraft data were collected by mailing the questionnaire three different times (March, May and July 1990) to the owners of all rotorcraft registered in the U.S. as of December 31, 1989. In addition, the questionnaire was sent twice (March and May, 1990) to rotorcraft operators identified by the Helicopter Foundation International (HFI). The HFI provided a listing of 706 rotorcraft operators. Even though all of the rotorcraft operated by the 706 operators were also on the FAA Master File, only 127 matches could be made by name and address since the HFI listing did not identify the N-number of the rotorcraft. Thus, 579 operators received two separate questionnaires: one as HFI-identified operators operating an unknown number of rotorcraft and a second questionnaire as the FAA-identified owner of a specific rotorcraft. If multiple questionnaires for the same rotorcraft were returned, the earliest one received was used.

4. **RESPONSE**

The first mailing in March 1990 covered all 10,469 aircraft in the census (including 579 operators) and had an overall response rate of 55.3 percent as shown in Table A.1. The response rate was 25.6 percent for operators and 57 percent for owners. The responses for the first mailing accounted for approximately 86.0 percent of the total responses to the survey. The second mailing conducted in May included only those aircraft in the census that had not yet responded including those respondents whose first mailing had been returned by the U.S. Postal Service (i.e., postal returns). The second mailing had a response rate of 13.2 percent which accounted for approximately 9.2 percent of the total responses to the survey. In the second mailing, 68 percent of the operators responded and 7.7 percent of the owners. The third mailing conducted in July 1990 was sent only to the owners of the rotorcraft who had not responded to the first or second mailings and postal returns were eliminated. The third mailing produced a response rate of 14.6 percent, or 4.7 percent of the total responses to the survey. The valid survey responses resulted in an overall response rate of 64.2 percent. Overall, 76.2 percent of the operators and 63.5 percent of the owners responded. Adjusting for postal returns, the response rate for delivered questionnaires was 78.3 percent. Similar adjustments show operator and owner responses for delivered questionnaires to be 92.9 percent and 77.5 percent, respectively.

Each of the three mailings was accompanied by a cover letter, shown respectively in Figures A.2, A.3, and A.4 at the back of this Appendix. The third mailing also had a special insert of an article by the FAA Administrator published in the Summer 1990 edition of Rotor magazine (Figure A.5).

TABLE A.1 SUMMARY OF RESPONSE INFORMATION

PHASE	VALID SAMPLE SIZE	* RESPONSES	RESPONSE RATE	% TOTAL RESPONSE
1st Mailing				
Operators	579	148	25.6	33.6
Owners	<u>9,890</u>	<u>5,638</u>	57.0	89.7
Total 1st Mailing:	10,469	5,786	55.3 (67.4)*	86.1
2nd Mailing ²				
Operators	431	293	68.0	66.4
Owners	<u>4,252</u>	<u>326</u>	7.7	5.2
Total 2nd Mailing:	4,683	619	13.2 (22.1)*	9.2
3rd Mailing ³				
Operators	0	0	0.0	0.0
Owners	<u>2,181</u>	<u>319</u>	14.6	5.1
Total 3rd Mailing:	2,181	319	14.6 (14.6)*	4.7
Census Total				
Operators	579	441	76.2	100.0
Owners	<u>9,890</u>	<u>6,283</u>	63.5	100.0
CENSUS TOTAL:	10,469	6,724	64.2 (78.3)*	100.0

*Adjusted for postal returns.

5. CENSUS DESIGN

5.1 Census Frame and Size

The FAA Mike Monroney Aeronautical Center in Oklahoma City maintains the Aircraft Registration Master File, which is the official record of registered civil aircraft in the United States. Questionnaires were sent to owners of all rotorcraft in the master file (according to the definition in Section 2.1), with the following exceptions:

- 1) rotorcraft registered to dealers;
- 2) rotorcraft with "Sale Reported" or "Registration Pending" appearing in the record instead of the owner's name;
- 3) rotorcraft with a known, inaccurate owner's address; and
- 4) rotorcraft with missing state of registration, aircraft make-model-series code, or aircraft type information.

For calendar year 1989, 10,469 general aviation rotorcraft were surveyed. Table A.2 shows the distribution of the census by rotorcraft type.

²Includes postal returns.

³Excludes 1,883 postal returns.

TABLE A.2 CENSUS AND POPULATION DISTRIBUTION
BY ROTORCRAFT TYPE

ROTORCRAFT TYPE	APPROXIMATE POPULATION	SAMPLE SIZE	SAMPLE AS % OF POPULATION
Manufacturer Built			
Piston	3,994	3,994	100.0
Single Engine Turbine	3,616	3,616	100.0
Multiengine Turbine	1,069	1,069	100.0
Amateur Built	<u>1,790</u>	<u>1,790</u>	100.0
TOTAL:	10,469	10,469	100.0

5.2 Description of Census Design

The 1989 Rotorcraft Activity Survey was initially designed to be a complete census of the rotorcraft fleet with the four exceptions listed on page A-4. However, as indicated in Table A.1, out of the 10,469 rotorcraft listed on the FAA Master file (including 579 rotorcraft owners identified as operators by the HFI), a total of 6,724 completed questionnaires were received which represents 64.2 percent of the targeted rotorcraft population. Therefore, the data received were extrapolated to the rotorcraft population size in order to represent all 10,469 rotorcraft in the general aviation rotorcraft fleet.

Each rotorcraft in the census was given a weight which corresponded to the number of rotorcraft in the census frame represented by that rotorcraft. When all responses to the census were tallied, each weight was adjusted according to the response rate for the cell, counting a rotorcraft for which no survey questions were answered as a non-respondent, and a rotorcraft for which at least one question was answered as a respondent. The weight adjustment is described below:

- 1) non-respondents' weights were changed to zero; and
- 2) the weights of all responding aircraft were adjusted uniformly by dividing the initial weight by the response rate for the cell.

This method of weight adjustment has several attributes. It actually incorporates the response rates into the final weights and simplifies estimation procedures.

5.3 Error

Errors associated with estimates derived from the census survey results fall into two categories: sampling and non-sampling errors. Sampling errors occur because the final estimates are based on a sample of only those rotorcraft that responded--not the entire population.

Non-sampling errors arise from a number of sources such as non-response, inability or unwillingness of respondents to provide correct information, differences in interpretation of questions, mistakes in recording or coding the data obtained, and others. The following sections discuss the two types of errors.

5.3.1 Sampling Error

In a designed survey, the sampling error associated with an estimate is generally unknown, but a measurable quantity, known as the standard error, is often used as a guide to the magnitude of sampling error. The standard error measures the variation which would occur among the estimates from all possible samples of the same design from the same population. It measures the precision with which an estimate approximates the average result of all possible samples or the result of a survey in which all elements of the population were sampled.

Since a census is a 100 percent sample, it is theoretically possible to eliminate sampling error altogether. However, there typically will be nonresponse. If the assumption is made that nonresponse is random, then the results are the same as having a survey with the original sample size, reduced by the number of nonresponses, with a 100 percent response for the survey. Since we have no strong basis to assume response biases, this is a reasonable assumption and permits the use of the standard survey estimation equations.

The user of survey results must consider sampling error along with the point estimate itself when making inferences or drawing conclusions about the sample population. A large standard error relative to an estimate indicates lack of precision and, inversely, a small standard error indicates precision. To facilitate the comparison of estimates and their errors, the tables in this publication display standard errors for all estimated quantities. In most cases, the tables contain the percent standard error, which is the standard error multiplied by 100 and divided by the corresponding estimate. The paragraphs below explain the proper interpretation and use of the errors.

An estimate and its standard error make it possible to construct an interval estimate with the prescribed confidence that the interval will include the average value of the estimate from all possible samples of the population. Table A.3 below shows selected interval widths and their corresponding confidence.

TABLE A.3 CONFIDENCE OF INTERVAL ESTIMATES

WIDTH OF INTERVAL	APPROXIMATE CONFIDENCE THAT INTERVAL INCLUDES AVERAGE VALUE
1 Standard error	68%
2 Standard errors	95%
3 Standard errors	99%

For the most part, the measure of precision presented in this report is the percent standard error (% s.e.). As explained above, this statistic is merely the ratio of the standard error to the estimate times 100 (to convert the fraction to a percent). In addition to immediately communicating the relative

precision of the estimate, it allows ready comparison of the survey's performance across variables. The following is an example of how to use the % s.e.: from Table 2.1, a 95 percent confidence interval for the number of active manufacturer built piston response would be 2,684 plus or minus 2 (1.2/100)(2,684) or the interval between 2,620 and 2,748. One would say that the number of active manufacturer built piston responses lies somewhere between 2,620 and 2,748 with 95 percent confidence. Another way of expressing this is that we are highly confident (95 percent) that the number of active manufacturer built piston responses is within plus or minus 2(1.2) percent, or 2.4 percent of 2,684.

5.3.2 Non-Sampling Error

Non-sampling error can be reduced through survey design, although the amount of reduction is difficult, if not impossible, to quantify in any given design. There are, however, various techniques which can limit non-sampling error. Several of these techniques were incorporated into the design of the Rotorcraft Activity Survey and are itemized below:

- 1) A second mailing and third mailing with an enclosed published article by the FAA Administrator were mailed in addition to the original mailing in order to improve the response rate, since a low response rate may be a major cause of non-sampling error due to the fact that nonrespondents may have different characteristics than respondents. The responses by rotorcraft type are listed in Table A.4. The data reveal a continuing problem with the sample frame because of incorrect addresses.
- 2) The survey questionnaire was designed to minimize misinterpretation of questions by the rotorcraft owners.
- 3) Comprehensive editing procedures insured the accuracy of the data transcription to machine readable form and the internal consistency of responses.
- 4) The official and most accurate source of information available on the civil fleet, the FAA Aircraft Registration Master File, provided the rotorcraft census list. This was supplemented by a listing of rotorcraft operators provided by the Helicopter Foundation International. Unfortunately, the high rate of postal returns reflects a seriously out-of-date rotorcraft file.

TABLE A.4 RESPONSE RATE BY ROTORCRAFT TYPE

ROTORCRAFT TYPE	RESPONSE RATE WITH POSTAL RETURNS	RESPONSE RATE ADJUSTED FOR POSTAL RETURNS
Manufacturer Built		
Piston	62.3%	76.0%
Single Engine Turbine	70.5%	85.9%
Multiengine Turbine	66.3%	80.1%
Amateur Built	54.7%	66.7%



U.S. Department
of Transportation
Federal Aviation
Administration

Figure A.2 First Cover Letter

800 Independence Ave., S.W.
Washington, D.C. 20591

March 1990

Dear Rotorcraft Owner:

As you well know, rotorcraft are playing an increasing role in aviation these days. Because of this increased role, the FAA is conducting a one-time special survey covering all rotorcraft.

The information collected will help all of us understand more about rotorcraft activities, their needs for air traffic facilities and services, and for assessing the impact of rotorcraft on the National Airspace System. These data will be used by the Federal, state, and local governments, as well as by private industry and individuals, for safety analysis, planning, forecasting, research and development.

The enclosed 1989 Rotorcraft Activity Survey questionnaire requests information for calendar year 1989.

After reading the instructions and the information on the back of this letter, please answer all the questions for the aircraft identified on the form and mail it today.

If you have any questions or need further assistance, please call Ms. Patricia Beardsley at (202) 267-8032 or Mr. Shung-Chai Huang at (202) 267-9943.

We appreciate your participation.

Sincerely,

Bert LaCroix
Bert LaCroix

Manager, Management Standards
and Statistics Division

Enclosure

The 1989 Rotorcraft Activity Survey

Why does the FAA collect this information?

The information collected by the survey will be used in a variety of ways. It will help the FAA to determine the need for changes to some of our regulations and the impact of those changes, and to pinpoint potential safety problems. The information also will help us to forecast rotorcraft activity and to help keep our Rotorcraft Master Plan up to date.

Will the survey responses be kept confidential?

Absolutely!!! The information you provide will not be published or released in any form that would reveal specific information reported by any individually identifiable respondent.

Why was I selected for this survey?

The survey covers all rotorcraft registered with the FAA as of December 31, 1989. The Registry shows you as the registrant of this aircraft on that date. If you own more than one rotorcraft, you will receive a questionnaire for each. Please answer all questions for the aircraft identified on the questionnaire.

It is very important that we receive a survey questionnaire for each and every rotorcraft registered as of December 31, 1989 so we can make accurate activity estimates for the various rotorcraft models and missions. In some cases the aircraft is not operated by the registered owner, but is actually being operated by another party under a long term operator or lessee arrangement. To increase the chances of covering 100% of the fleet, we are also mailing a package of blank questionnaires to a list of operators provided by the rotorcraft industry.

IF You receive questionnaires as both a registered owner and an operator, complete whichever form is the most convenient for you.

IF You are the owner, but not the operator and cannot complete the form, please send it to the operator. Please do not assume that the operator has received a questionnaire. That company may not be on our list.

We realize, that by doing this, we will get duplicate forms for some aircraft, but we will be able to eliminate duplicate responses. We would rather take this additional step than risk missing an aircraft. So whether you are an owner, operator, or both please complete the form as best you can and return it to us.

What should I do?

IF Your rotorcraft, for whatever reasons, was not in use during calendar year 1989, answer questions 1-9 and return the questionnaire to FAA. The fact that your rotorcraft was not flown during the year is just as important as the fact that it was flown.

IF You cannot provide a precise answer to any questions, make your best estimate.

IF You are no longer in possession of this rotorcraft but were the registered owner on December 31, 1989, try to answer all the questions.

IF your rotorcraft was sold prior to December 31, 1989, please forward this mail to the new owner for response.

IF Your rotorcraft was stolen, destroyed, lost, donated to an organization, or otherwise not in your possession, and you have not yet notified the FAA Registry, do so immediately by writing to:

Aircraft Registration Branch, AVN-450
7500 South MacArthur Blvd.
Oklahoma City, OK 73125

The signature of the rotorcraft owner of record is required to make any changes to the aircraft registration record.

If you have any questions regarding the registration of your aircraft, please call (405) 686-3116.



U.S. Department
of Transportation
Federal Aviation
Administration

Figure A.3 Second Cover Letter

800 Independence Ave. S.W.
Washington, D.C. 20591

April 1990

Dear Rotorcraft Owner:

In March we sent you a 1989 Rotorcraft Activity Survey questionnaire. The information collected by this survey will be used to help all of us understand more about rotorcraft activity and their missions.

As of this date, we have not received your response. In case our first mailing never reached you or was misplaced, we have enclosed another questionnaire and a return, postage-paid envelope.

I urge you to read the instructions and information on the back page of this letter, complete the questionnaire for the aircraft identified on the form, and use the enclosed envelope to return it to us today.

If you have any questions or need further assistance, please contact Ms. Patricia Beardsley at (202) 267-8032 or Mr. Shung-Chai Huang at (202) 267-9943.

We appreciate your participation.

Sincerely,

Bert LaCroix
Bert LaCroix

Manager, Management Standards
and Statistics Division, AMS-400

Enclosure

The 1989 Rotorcraft Activity Survey

Why does the FAA collect this information?

The information collected by the survey will be used in a variety of ways. It will help the FAA to determine the need for changes to some of our regulations and the impact of those changes, and to pinpoint potential safety problems. The information also will help us to forecast rotorcraft activity and to help keep our Rotorcraft Master Plan up to date.

Will the survey responses be kept confidential?

Absolutely!!! The information you provide will not be published or released in any form that would reveal specific information reported by any individually identifiable respondent.

Why was I selected for this survey?

The survey covers all rotorcraft registered with the FAA as of December 31, 1989. The Registry shows you as the registrant of this aircraft on that date. If you own more than one rotorcraft, you will receive a questionnaire for each. Please answer all questions for the aircraft identified on the questionnaire.

It is very important that we receive a survey questionnaire for each and every rotorcraft registered as of December 31, 1989 so we can make accurate activity estimates for the various rotorcraft models and missions. In some cases the aircraft is not operated by the registered owner, but is actually being operated by another party under a long term operator or lessee arrangement. To increase the chances of covering 100% of the fleet, we are also mailing a package of blank questionnaires to a list of operators provided by the rotorcraft industry.

IF You receive questionnaires as both a registered owner and an operator, complete whichever form is the most convenient for you.

IF You are the owner, but not the operator and cannot complete the form, please send it to the operator. Please do not assume that the operator has received a questionnaire. That company may not be on our list.

We realize, that by doing this, we will get duplicate forms for some aircraft, but we will be able to eliminate duplicate responses. We would rather take this additional step than risk missing an aircraft. So whether you are an owner, operator, or both please complete the form as best you can and return it to us.

What should I do?

IF Your rotorcraft, for whatever reasons, was not in use during calendar year 1989, answer questions 1-9 and return the questionnaire to FAA. The fact that your rotorcraft was not flown during the year is just as important as the fact that it was flown.

IF You cannot provide a precise answer to any questions, make your best estimate.

IF You are no longer in possession of this rotorcraft but were the registered owner on December 31, 1989, try to answer all the questions.

IF your rotorcraft was sold prior to December 31, 1989, please forward this mail to the new owner for response.

IF Your rotorcraft was stolen, destroyed, lost, donated to an organization, or otherwise not in your possession, and you have not yet notified the FAA Registry, do so immediately by writing to:

Aircraft Registration Branch, AVN-450
7500 South MacArthur Blvd.
Oklahoma City, OK 73125

The signature of the rotorcraft owner of record is required to make any changes to the aircraft registration record.

If you have any questions regarding the registration of your aircraft, please call (405) 680-3116.



U.S. Department
of Transportation
Federal Aviation
Administration

Figure A.4 Third Cover Letter

800 Independence Ave., S.W.
Washington, D.C. 20591

July 1990

Dear Rotorcraft Owner:

This is your last opportunity to participate in the 1989 Rotorcraft Activity Survey.

In March and April, we asked you to complete the survey questionnaire which will be used to make estimates of rotorcraft activity. We have not yet received your response.

To make accurate activity estimates, we need information for each and every rotorcraft registered with the FAA as of December 31, 1989. Please consider completing the enclosed survey form and sending it back to us. (Instructions are on the back of this letter.)

If you have any reservations or questions about completing the form, or need further assistance, please call Ms. Patricia Beardsley at (202) 267-8032 or Mr. Shung-Chai Huang at (202) 267-9943.

We appreciate your cooperation.

Sincerely,

Bert LaCroix
Bert LaCroix

Manager, Management Standards
and Statistics Division, AMS-400

Enclosure

The 1989 Rotorcraft Activity Survey

Why does the FAA collect this information?

The information collected by the survey will be used in a variety of ways. It will help the FAA to determine the need for changes to some of our regulations and the impact of those changes, and to pinpoint potential safety problems. The information also will help us to forecast rotorcraft activity and to help keep our Rotorcraft Master Plan up to date.

Will the survey responses be kept confidential?

Absolutely!!! The information you provide will not be published or released in any form that would reveal specific information reported by any individually identifiable respondent.

Why was I selected for this survey?

The survey covers all rotorcraft registered with the FAA as of December 31, 1989. The Registry shows you as the registrant of this aircraft on that date. If you own more than one rotorcraft, you will receive a questionnaire for each. Please answer all questions for the aircraft identified on the questionnaire.

It is very important that we receive a survey questionnaire for each and every rotorcraft registered as of December 31, 1989 so we can make accurate activity estimates for the various rotorcraft models and missions. In some cases the aircraft is not operated by the registered owner, but is actually being operated by another party under a long term operator or lessee arrangement. To increase the chances of covering 100% of the fleet, we are also mailing a package of blank questionnaires to a list of operators provided by the rotorcraft industry.

IF You receive questionnaires as both a registered owner and an operator, complete whichever form is the most convenient for you.

IF You are the owner, but not the operator and cannot complete the form, please send it to the operator. Please do not assume that the operator has received a questionnaire. That company may not be on our list.

We realize, that by doing this, we will get duplicate forms for some aircraft, but we will be able to eliminate duplicate responses. We would rather take this additional step than risk missing an aircraft. So whether you are an owner, operator, or both please complete the form as best you can and return it to us.

What should I do?

IF Your rotorcraft, for whatever reasons, was not in use during calendar year 1989, answer questions 1-9 and return the questionnaire to FAA. The fact that your rotorcraft was not flown during the year is just as important as the fact that it was flown.

IF You cannot provide a precise answer to any questions, make your best estimate.

IF You are no longer in possession of this rotorcraft but were the registered owner on December 31, 1989, try to answer all the questions.

IF your rotorcraft was sold prior to December 31, 1989, please forward this mail to the new owner for response.

IF Your rotorcraft was stolen, destroyed, lost, donated to an organization, or otherwise not in your possession, and you have not yet notified the FAA Registry, do so immediately by writing to:

Aircraft Registration Branch, AVN-450
7500 South MacArthur Blvd.
Oklahoma City, OK 73125

The signature of the rotorcraft owner of record is required to make any changes to the aircraft registration record.

If you have any questions regarding the registration of your aircraft, please call (405) 680-3116.

ASK THE ADMINISTRATOR

FAA Helicopter Survey Will Improve Services to Users



James B. Busey
Administrator, Federal Aviation
Administration

Ask the Administrator is a regular feature column in Rotor magazine. It reaches the top leaders of the civil helicopter industry and serves as a direct communication link between the rotorcraft community and the FAA Administrator.

Mr. Administrator: The FAA has recently initiated a survey of all helicopters registered in the United States.

An earlier survey was done under FAA contract with participation of the Helicopter Foundation International (HFI), and in cooperation with HAI's Safety Through Accurate Technical Statistics (S.T.A.T.S.) Program, which recommended follow on 100 per cent surveys annually.

What do you plan to accomplish with the survey, and when will the results be available?

Answer: It has become clear to me that rotorcraft are playing an increasingly important role in U.S. aviation. Helicopters have become a dominant force in specialized areas such as servicing the natural resource industry, including oil exploration and production, forestry and agriculture, and in law enforcement and emergency medical services. Other important areas continue to grow. These include air taxi charter, executive and business

transportation, and aerial observation and application.

Rotorcraft commercial passenger traffic does not appear to be significant today when compared to national totals; however, I believe we will see rapid growth in the commercial passenger area this decade. With new and improved passenger-friendly, all-weather, turbine-powered helicopters coming into the fleet, and the potential that tiltrotor technology offers, the rotorcraft industry should be in a position to capture an increasing market share of short-haul passengers.

Our planning studies indicate that by 2010 rotorcraft could provide as much as 10 percent of intercity air passenger operations capacity in the National Airspace System. This would represent phenomenal growth. These forecasts are driven by two key factors: First, by the end of this decade the number of capacity-constrained airports in this country is expected to almost double from 22 to 37. Secondly, improved helicopters and tiltrotors will be available and capable of operating reliably, independent of congested air routes and runways. The FAA is committed to doing the necessary air traffic control and airspace work to permit this to happen. We are also committed to doing our share to support state and local governments and developers in their efforts to bring public use heliports and vertiports on-line.

The 1989 Rotorcraft Activity Survey will help the Federal Aviation Administration improve the services it provides to system users. To make decisions on what services are needed, and in which locations, we need accurate operations data. This data is also important for improving our rotorcraft forecasts, which serve as a foundation for planning and development of future strategies. The 100 percent rotorcraft activity survey is targeted at developing this industry data.

Since 1977, the FAA, using sampling techniques, has collected general aviation activity information as part of its General Aviation Activity and Avionics (GA) Survey. The activity information collected includes such items as total flight hours, flight hours

by use category, total lifetime airframe hours, number of landings, and the state where the aircraft is based. Categories of use include areas such as commuter air carrier, business transportation, and aerial observation. The survey is broad and covers the full spectrum of General Aviation aircraft: fixed-wing powered aircraft, rotorcraft, gliders, blimps, dirigibles, and balloons.

Although rotorcraft are included in the GA Surveys, their data is not categorized such that it clearly and completely describes rotorcraft operations, and the GA Survey does not collect data on types of landing facilities used by rotorcraft. Therefore, the data is not segmented into all the areas of particular interest to rotorcraft owners and operators. This additional information is captured in the new survey.

Another concern is that rotorcraft represents only 4 percent of the registered general aviation fleet that is being sampled. As a result, year-to-year rotorcraft data showed more variability than we would like to see. The one-time 100 percent survey will enable us to accurately describe helicopter operations in 1989. This data will serve as a base for current decisions and improve forecasts and future planning. I believe it will aid manufacturers and operators in developing strategies that will be beneficial to the overall growth and health of the industry.

Questionnaires were mailed in late March, 1990. The response rate has been good; by mid-June, over 60% of the survey forms were completed and submitted to FAA. Since our goal is to collect data on all helicopters, we are now taking steps to encourage owners and operators, who have not as yet responded, to fill out their forms. Data collection should be completed by the end of July and survey results will be available by the end of the year. I'm sure that you in the industry are as anxious as I am to see the results of this survey.

The survey could not be successful without the cooperation of the owners and operators. The FAA has appreciated the interest and support that the industry, and the Helicopter Association International, has given to this effort.

APPENDIX B

SDR ROTORCRAFT GROUP NAME
FAA MANUFACTURER/MODEL CODES

PAGE 1 OF 2

SDR NAME	FAA CODE	SDR NAME	FAA CODE	SDR NAME	FAA CODE	SDR NAME	FAA CODE	SDR NAME	FAA CODE
AERORSJ2	5500604	BELL 47	1181012	FRCHLDFH1100	4361415	HUGHES369	4470731	MILITARY47	1181002
AEROSP360	8680662	BELL 47	118084G	H19/45	8141615	HUGHES369	4470704	MILITARY47	1181005
AEROSPAS355	8680807	BELL 47	1181102	H19/45	814161E	HUGHES369	4470718	MILITARY204	118141G
AEROSPAS355	8680806	BELL 47	1181011	H23/HTE	4360109	HUGHES369	4470708	MODFD47	1181074
AEROSPAS355	8680812	BELL 47	1180606	H23/HTE	4360111	HUGHES369	4470802	MODFD47	1181306
AEROSPAS355	8680805	BELL 47	1181003	H23/HTE	4362305	HUGHES369	4470806	MODFD47	1181063
AEROSPAS355	8680810	BELL 47	1181014	H23/HTE	4360123	HUGHES369	4470722	MODFD47	1180822
AEROSPAS316	8680615	BELL 47	1181202	H23/HTE	4362303	HUGHES369	4470706	MODFD47	1181027
AEROSPAS316	8680515	BELL 47	1181023	H34/55	8141813	HUGHES369	4470720	MODFD47	1180820
AEROSPAS316	8680605	BELL 47	1181104	H34/55	8141810	HUGHES369	4470805	MODFD47	118084V
AEROSPAS316	8680207	BELL 47	1181031	H34/55	8141823	HYNES 305	1440602	MODFD47	1181032
AEROSPAS365	8680669	BELL 47	1181033	H34/55	8141819	HYNES B2	1440502	MODFD47	118084F
AGUSTA205	1181414	BELL 47	1181024	H37	8142302	HYNES B2	1440506	MODFD47	1181060
AGUSTA206AGS	0260301	BELL 47	1181310	HILLERFH1100	3376502	HYNES B2	1440504	MODFD47	1180846
AGUSTA206AGS	0260302	BELL 47	1181026	HILLERUH12	4360105	KAMAN K600	4800805	MODFD47	1181072
AGUSTA109	0260112	BELL 47	1181029	HILLERUH12	4360809	KAMAN K600	4800702	MODFD47	1180843
AGUSTA109	0260120	BELL 47	1180702	HILLERUH12	4360130	KAMAN K600	4800704	MODFD47	1180844
AGUSTA109	0260109	BELL 47	1181008	HILLERUH12	4360113	KAMAN K600	4800802	MODFD47	1181065
AIRSPC18	0440104	BELL 47	1181025	HILLERUH12	4360128	KAMANK600	8940101	MODFD47	118103H
AMTR GOOD	1301577	BELL 47	1181034	HILLERUH12	4360132	KAWSKIKV107	4820101	MODFD47	1181013
AMTR MENZIE	13027HJ	BELL 47	1181106	HILLERUH12	4360127	KELLETRD1	4850106	MODFD47	1181068
AMTRACELITE	13027GG	BELL 47	1181030	HILLERUH12	4360120	MACDOUG369	3027369	MODFD47	118100V
AMTRBARNET	05602VE	BELL 47	1180604	HILLERUH12	4360110	MILITARY204	1181401	MODFD47	1180847
AMTRBVCRAFT	13027C7	BELL 204	1181402	HILLERUH12	4360121	MILITARY204	1181411	MODFD47	118084C
ARCNEH37	8141617	BOEING107	9420604	HILLERUH12	4360118	MILITARY204	118141B	MODFD47	1181001
ARCNEH37	8142801	BOEING107	1385005	HILLERUH12	4360122	MILITARY204	1181407	MODFD47	1181019
9ELL 204	1181404	BOEING107	1385007	HILLERUH12	4360114	MILITARY204	1181410	MODFD47	118084R
BELL 204	1181405	BOEING234	1385064	HILLERUH12	4360124	MILITARY204	1181409	MODFD47	1180845
BELL 206	1182107	ECEING234	1385049	HILLERUH12	4360116	MILITARY204	118141M	MODFD47	1181066
BELL 206	1181522	BOEINGH21	9420102	HILLERUH12	4360126	MILITARY204	1181408	MODFD47	1181071
BELL 206	1181502	BOEINGH21	9420106	HILLERUH12	4360119	MILITARY47	1180804	MODFD47	1181067
BELL 206	1181511	BOEINGH21	1385006	HILLERUH12	4360125	MILITARY47	8930105	MODFDUH12	4360704
BELL 206	1182108	BOLKMS105	5626020	HILLERUH12	4360103	MILITARY47	1180817	MODFDUH12	4360702
BELL 206	1181506	BOLKMS105	5626006	HILLERUH12	4360102	MILITARY47	1181007	MODFDUH12	4361301
BELL 206	1182103	BOLKMS105	5626008	HILLERUH12	4360131	MILITARY47	1180810	MODFDUH12	4360701
BELL 206	1181508	BOLKMS105	5626005	HILLERUH12	4360135	MILITARY47	8930107	MODFDUH12	4361101
BELL 212	1181420	BOLKMS117	5626015	HILLERUH12	4360104	MILITARY47	1181010	MODFDUH12	4360801
BELL 214	1182100	BOLKMS117	5626010	HILLERUH12	4360115	MILITARY47	8930110	MODFDUH12	4360601
BELL 214	1182105	BOLKMS117	5626012	HILLERUH12	4360117	MILITARY47	1180813	MODFDUH12	4360810
BELL 214	1182106	BOLKMS117	5626017	HILLERUH12	4360117	MILITARY47	8930103	MODFDUH12	4361501
BELL 222	1182122	ENSTRMF28	3300506	HUGHES269	4362402	MILITARY47	1180806	ORLHELH19	8141614
BELL 222	1182124	ENSTRMF28	3300404	HUGHES269	4470404	MILITARY47	1181585	ORLHELH19	8141609
BELL 222	1182140	ENSTRMF28	3300510	HUGHES269	4470403	MILITARY47	1180802	ORLHELH19	8141610
BELL 222	1182148	ENSTRMF28	3300407	HUGHES269	4470504	MILITARY47	1180904	ORLHELH19	814161G
BELL 222	1182123	ENSTRMF28	3300505	HUGHES269	4471004	MILITARY47	1180809	ORLHELH19	8141612
BELL 301	1182109	ENSTRMF28	3300412	HUGHES269	4470502	MILITARY47	1180808	ORLHELH19	8141608
BELL 412	1182202	ENSTRMF28	3300550	HUGHES369	4470728	MILITARY47	1181504	ORLHELH19	814161J
BELL 47	1181028	ENSTRMF28	3300406	HUGHES369	4470702	MILITARY47	1180815	ORLHELH19	8141618
BELL 47	1181032	ENSTRMF28	3300430	HUGHES369	4470707	MILITARY47	1181006	ORLHELH19	8141616
BELL 47	1181020	ENSTRMF28	3300502	HUGHES369	4470730	MILITARY47	8930102	ORLHEL558	8141818

APPENDIX B

SDR ROTORCRAFT GROUP NAME
FAA MANUFACTURER/MODEL CODES

PAGE 2 OF 2

SDR NAME	FAA CODE	SDR NAME	FAA CODE	SDR NAME	FAA CODE	SDR NAME	FAA CODE
OTHEXMITLPST	8140102	SKRSKYS76	8143006				
OTHEXMITLPST	8140304	SKRSKYS76	8143010				
OTHEXMITLTURB	4800803	SKRSKYS76	8143007				
OTHEXMITLTURB	4470904	SNIAS 350	8680803				
OTHEXMITLTURB	4470905	SNIAS 350	8680800				
OTHEXMITLTURB	4800708	SNIAS 350	8680801				
PIASEHUP	6980302	SNIAS 350	8680802				
PIASEHUP	6980320	SNIAS 350	8680804				
ROBSINR22	7640102	SNIAS AS332	8680808				
ROBSINR22	7640110	SNIAS AS332	8680809				
ROBSINR22	7640104	SNIAS SA318	8680506				
ROBSINR22	7640115	SNIAS SA318	8680508				
SCHWZH269	8059500	SNIAS SA318	8680511				
SCHZOWMODELB	0560221	SNIAS SA330	8680612				
SKRSKYS51	8141102	SNIAS SA341	8680610				
SKRSKYS52	8141306	SNIAS SE313	8680502				
SKRSKYS52	8141308	TH55	4471002				
SKRSKYS55	8141603	TOMCAT	2390304				
SKRSKYS55	8141606	TOMCAT	2390101				
SKRSKYS55	8141602	TOMCAT	1181069				
SKRSKYS55	8141604	TOMCAT	2390302				
SKRSKYS55	8141605	TOMCAT	2390204				
SKRSKYS58	8141808	TOMCAT	2390303				
SKRSKYS58	8141806	TOMCAT	2390202				
SKRSKYS58	8141821	TOMCAT	1180816				
SKRSKYS58	8141804	TOMCAT	2390301				
SKRSKYS58	8141811	TOMCAT	1181062				
SKRSKYS58	8141801	TOMCAT	1181061				
SKRSKYS58	8141814	TOMCAT	2390305				
SKRSKYS58	8141815	WESTLD30	9650160				
SKRSKYS58	8141839						
SKRSKYS58	8141809						
SKRSKYS58	8141800						
SKRSKYS58T	8141805						
SKRSKYS58T	8141807						
SKRSKYS58T	8141840						
SKRSKYS58T	8141803						
SKRSKYS58T	8141844						
SKRSKYS58T	8141842						
SKRSKYS61	8142102						
SKRSKYS61	8142104						
SKRSKYS61	8142103						
SKRSKYS61	8142101						
SKRSKYS61	8141826						
SKRSKYS61	814210C						
SKRSKYS61	8142107						
SKRSKYS62	8142202						
SKRSKYS64	8142604						
SKRSKYS64	8142620						
SKRSKYS70	8143000						

APPENDIX C

DEFINITIONS OF ROTORCRAFT EXPANDED USE CATEGORIES

Aerial Application--Use of the aircraft for the distribution of things; includes operations under FAR Part 137, Agricultural Aircraft Operations, and also activities like crop dusting, insect control, fish stocking, fire fighting, and fertilization.

Aerial Observation--Use of the aircraft as an observation platform. Examples include: mapping, photography, survey, patrol, search and rescue, highway traffic advisory, sightseeing, ranching, surveillance, oil and mineral exploration, criminal pursuit, and fish spotting.

Air Taxi--Passenger and cargo operations for hire under FAR Part 135: Air Taxi and Commercial Operators, excluding commuters and Emergency Medical Service (EMS).

Business Transportation--Individual use of an aircraft for business reasons.

Commuter Air Carrier--Scheduled (at least five scheduled round trips per week) passenger and cargo operations under FAR Part 135: Air Taxi and Commercial Operators.

Company/Executive Transportation--Transportation of company personnel, guest, or cargo, with a professional crew (not under FAR Part 135, Air Taxi and Commercial Operators). Examples include: transporting parts or crews to off-shore oil rigs, transporting fire fighters to fires, and bank paper transfer.

Emergency Medical Service (EMS)--Transporting people for medical care, or transporting donor organs for transplant.

- o Under FAR Part 135, Air Taxi and Commercial Operators;
- o Not under FAR Part 135.

External Load--Operations under FAR Part 133, Rotorcraft External Load Operations. Examples include helicopter hoist and hauling logs.

Instructional--Flying under the supervision, or specific direction, of a flight instructor.

Other--R&D, experimentation, testing, air shows, demonstrations.

Other Work Use--Construction work, aerial advertising, pollinating, movie making.

Personal/Recreational--Individual flying for personal, non-business reasons.